Author Index to Volume 39

(L) indicates Letters to the Editor. It will be noted that there are no references to "see someone else" in the Author Index. Although it has meant a little duplication, there have been included under each author all articles in which he was author or co-author. All articles in which the author has participated are arranged under his name in the chronological order of publication.

Abbondanza, G.
Infrared spectra in polarized light and vibrational assignment of the infrared-active modes of pyrene and pyrene-d_{10}, S. Califano and G. Abbondanza—1016

Abe, Yutaka
Irreducible cluster integrals of hard-sphere gases, Shigetoshi Katsura and Yutaka Abe—2068

Ablow, Clarence M.
Diffusion and heterogeneous reaction. V. Transition from a surface- to a diffusion-controlled process during atom recombination, Henry Wise, Clarence M. Ablow, and Dan J. Schott—2063

Abrahams, S. C.
Antiferromagnetic and crystal structure of lithium cupric chloride dihydrate, S. C. Abrahams and H. J. Williams—2923

Abramowitz, Stanley
ν_3 vibration of methane in condensed oxygen, nitrogen, and argon, Stanley Abramowitz and H. P. Broida—2383(L)
Measurement of infrared band contours in solution, Stanley Abramowitz and Robert P. Bauman—2757

Abramson, E.
Indirect observation of singlet–triplet absorption in anthracene crystals, P. Avakian, E. Abramson, R. G. Kepler, and J. C. Caris—1127(L)

Adams, J. Q.
Electron paramagnetic resonance of a hydrazine radical ion, J. Q. Adams and J. R. Thomas—1904(L)

Adams, William H.
Correlation effects in the alternant molecular orbital approximation, William H. Adams—23

Adelman, Albert H.
Two-photon excitation of phosphorescence and fluorescence, Albert H. Adelman and Carl M. Verber—931

Agahigian, H.
Homonuclear decoupling: P^{31}–P^{31}, H. Agahigian, G. D. Vickers, J. Roscoe, and J. Bishop—1621(L)

Akamatu, H.
Photoconduction in charge-transfer complexes, H. Akamatu and H. Kuroda—3364

Alexakos, Louis G.
Collision-narrowing technique for NMR studies of gases at moderate pressures, Louis G. Alexakos and C. D. Cornwell—1616(L)

Alexander, C. A.
Transpiration study of magnesium oxide, C. A. Alexander, J. S. Ogden, and A. Levy—3057

Alexander, M.
On numerical calculations by the Hellmann–Feynman procedure, L. Salem and M. Alexander—2994

Alkemade, C. T. J.
Ionization rate constants of alkali metals in CO flames, Tj. Hollander, P. J. Kalff, and C. T. J. Alkemade—2558

Allen, Leland C.
Erratum: Wavefunctions and correlation energies for F, F^-, and Ne, L. L. Lohr, Jr., and Leland C. Allen [**34**, 1156 (1961)]—2106(L)

Ander, Paul
Second virial coefficient of polyelectrolytes. III, Norio Ise and Paul Ander—592

Anderson, E. W.
Polymer NMR spectroscopy. X. The use of H^1–H^1 spin decoupling in the elucidation of polymer structure, F. A. Bovey, E. W. Anderson, D. C. Douglass, and J. A. Manson—1199

Anderson, Kenneth H.
On the mechanism of the pyrolysis of neopentyl chloride, Kenneth H. Anderson and Sidney W. Benson—1673
Hydrogen-chloride-catalyzed pyrolysis of dimethyl ether and the use of HCl catalysis for diagnosis of complex chains, Kenneth H. Anderson and Sidney W. Benson—1677

Anderson, Ralph
Spectroscopic evidence for complex formation between carbon tetrachloride and aromatic hydrocarbons, Ralph Anderson and J. M. Prausnitz—1225

Anderson, W. A.
Removal of residual splitting in nuclear magnetic double resonance, W. A. Anderson and F. A. Nelson—183
Indirect detection of weak or hidden nuclear magnetic resonance signals, R. Freeman and W. A. Anderson—806
Assignment of NMR spectra with the aid of double-quantum transitions, W. A. Anderson, R. Freeman, and C. A. Reilly—1518

Andresen, H. G.
On the theory of torsional vibrations of $(CH_3)_3$–X type molecules, K. D. Möller and H. G. Andresen—17

Anno, Tosinobu
Semiempirical calculation on the lower electronic states of the benzene molecule, Tosinobu Anno and Akira Sado—2293

Applequist, Jon
Theory of the effects of concentration and chain length on helix-coil equilibria in two-stranded nucleic acids, Jon Applequist and Vinayak Damle—2719

Arase, Elizabeth M.
Frequency distribution and the specific heat of NACl, Elizabeth M. Arase, Robert D. Hatcher, and Jacob Neuberger—353

Archer, R. D.
Oxygen contamination and "pure" manganese sulfide, R. D. Archer and W. N. Mitchell—250(L)

Arends, C. B.
Kinetic retardation in the quarternization of poly(4-vinylpyridine), C. B. Arends—1903(L)

Armstrong, John A.
Temperature and pressure dependence of the Co^{59} nuclear resonance chemical shift, George B. Benedek, Robert Englman, and John A. Armstrong—3349

Aten, C. F.
Absorption spectra of polyatomic molecules at high temperatures. II. Benzene and perfluorobenzene. Kinetics of the pyrolysis of benzene, S. N. Bauer and C. F. Aten—1253

Ausloos, P. J.
Gas-phase radiolysis of *n*-butane, R. P. Borkowski and P. J. Ausloos—818
Effect of additives on the ionic reaction mechanism in the radiolysis of methane, P. Ausloos, S. G. Lias, and R. Gorden, Jr.—3341

Avakian, P.
Indirect observation of singlet–triplet absorption in anthracene crystals, P. Avakian, E. Abramson, R. G. Kepler, and J. C. Caris—1127(L)

Axe, John D., Jr.
Radiative transition probabilities within $4f^n$ configurations: the fluorescence spectrum of europium ethylsulfate, John D. Axe, Jr.—1154

Azumi, Tohru
Delayed fluorescence of solid solutions of polyacenes. II. Kinetic considerations, Tohru Azumi and Seán P. McGlynn—1186
Delayed fluorescence of solid solutions of polyacenes. IV. The origin of excimer fluorescence, Tohru Azumi and Seán P. McGlynn—3533(L)

Babb, A. L.
Vapor-phase equilibrium of NO, NO_2, H_2O, and HNO_2, D. M. Waldorf and A. L. Babb—432

Babb, Stanley E., Jr.
Melting and polymorphism in $SbCl_3$ and $SbBr_3$, Billy F. Bowles, Gene J. Scott, and Stanley E. Babb, Jr.—831

Barlow, C. A., Jr.
Work function change on monolayer adsorption, J. Ross Macdonald and C. A. Barlow, Jr.—412

Barnett, M. P.
Pi electronic structure of the benzene molecule, J. W. Moskowitz and M. P. Barnett—1557

Barns, Edwin E.
Correlations among electronic transitions for carbonyl and for carboxyl in the vacuum ultraviolet, Edwin E. Barns and William T. Simpson—670

Barrett, P. H.
Electron transfer in dilute gold alloys, P. H. Barrett, R. W. Grant, Morton Kaplan, D. A. Keller, and D. A. Shirley—1035

Bartell, L. S.
Structure and rotational isomerization of free hydrocarbon chains, L. S. Bartell and D. A. Kohl—3097

Battino, Rubin
On the recalculation of the potential curves for the ground states of I_2 and H_2, Stanley Weissman, Joseph T. Vanderslice, and Rubin Battino—2226

Bauer, S. H.
Studies with a single-pulse shock tube. II. The thermal decomposition of perfluorocyclobutane, Assa Lifshitz, H. F. Carroll, and S. H. Bauer—1661
On the density–intensity calibration in electron diffraction studies, K. Kimura and S. H. Bauer—3171
Electron diffraction study of the molecular structures of sulfur tetrafluoride (SF_4) and thionyl tetrafluoride (SOF_4), K. Kimura and S. H. Bauer—3172

Bauer, S. N.
Absorption spectra of polyatomic molecules at high temperatures. II. Benzene and perfluorobenzene. Kinetics of the pyrolysis of benzene, S. N. Bauer and C. F. Aten—1253

Bauman, Robert P.
Measurement of infrared band contours in solution, Stanley Abramowitz and Robert P. Bauman—2757

Bearman, Richard J.
Theory of the single-ion heat of transport in nonisothermal electrolytic solutions, Richard J. Bearman and V. S. Vaidhyanathan—3411

Beckel, Charles L.
Vibrational analysis of the Heitler-London potential of H_2, Charles L. Beckel—90
Application of the second-order WBK approximation to radial problems, Charles L. Beckel and Jamil Nakhleh—94

Becker, D. A.
Vacuum ultraviolet photochemistry. VII. Photolysis of *n*-butane, H. Okabe and D. A. Becker—2549

Belford, Geneva G.
NMR studies of phase transitions. I. NaSH, C. K. Coogan, Geneva G. Belford, and H. S. Gutowsky—3061

Belford, R. Linn
Vanadium tetrachloride vibrational spectrum, Eugene L. Grubb and R. Linn Belford—244(L)

Bellamy, W. D.
Preparation and properties of monomolecular films of chlorophyll *a* and pheophytin *a*, W. D. Bellamy, G. L. Gaines, Jr., and A. G. Tweet—2528

Benedek, George B.
Temperature and pressure dependence of the Co^{59} nuclear resonance chemical shift, George B. Benedek, Robert Englman, and John A. Armstrong—3349

Benesch, William
Simultaneous measurement of HI fundamental and overtone lines, William Benesch—1048

Ben-Reuven, A.
Pressure-induced shifts of molecular lines in emission and in adsorption, J. H. Jaffe, H. Friedmann, M. A. Hirshfeld, and A. Ben-Reuven—1447

Benson, G. C.
Calculation of surface distortion in an alkali halide crystal bounded by a free {100} face, G. C. Benson, P. I. Freeman, and E. Dempsey—302

Benson, R. E.
Proton spin–spin coupling constants from the NMR spectra of paramagnetic molecules, D. R. Eaton, A. D. Josey, W. D. Phillips, and R. E. Benson—3513

Benson, Sidney W.
Kinetics of the reaction of HI with ethyl iodide and the heat of formation of the ethyl radical, D. B. Hartley and Sidney W. Benson—132
On the mechanism of the pyrolysis of neopentyl chloride, Kenneth H. Anderson and Sidney W. Benson—1673
Hydrogen-chloride-catalyzed pyrolysis of dimethyl ether and the use of HCl catalysis for diagnosis of complex chains, Kenneth H. Anderson and Sidney W. Benson—1677

Classical model for vibrational and rotational excitation of diatomic molecules by collision. III, Sidney W. Benson and George C. Berend—2777(L)
Structural aspects of the kinetics of four-center reactions in the vapor phase, Sidney W. Benson and A. N. Bose—3463

Berend, George C.
Classical model for vibrational and rotational excitation of diatomic molecules by collision. III, Sidney W. Benson and George C. Berend—2777(L)

Berg, R. A.
Geometry of the alkaline-earth dihalides, L. Wharton, R. A. Berg, and W. Klemperer—2023

Berger, R. T.
On the nature of the crystal field approximation. II. Numerical results, R. T. Berger and C. M. Herzfeld—1122

Berkowitz, J.
Equilibrium composition of sulfur vapor, J. Berkowitz and J. R. Marquart—275
Dissociation energies of some metal sulfides, J. R. Marquart and J. Berkowitz—283

Berkowitz-Mattuck, Joan B.
Gaseous metaborates. I. Mass-spectrometric study of the vaporization of lithium and sodium metaborates, Alfred Büchler and Joan B. Berkowitz-Mattuck—286
Mass-spectrometric investigation of the oxidation of molybdenum and tungsten, Joan B. Berkowitz-Mattuck, Alfred Büchler, John L. Engelke, and Steven N. Goldstein—2722

Bernecker, R. R.
Rearrangement processes for forming oxonium ions from aliphatic ester ions, R. R. Bernecker and F. A. Long—253(L)

Bestul, A. B.
Deuterium isotope effect on glass transformation temperatures of aqueous inorganic solutions, L. C. Shepley and A. B. Bestul—680

Beurskens, Gezina
Polyhedral clathrate hydrates. VI. Lattice type and ion distribution in some new peralkyl ammonium, phosphonium, and sulfonium salt hydrates, Gezina Beurskens, G. A. Jeffrey, and R. K. McMullan—3311

Bhatnagar, Hari L.
Anisotropic scattering of light by isolated freely flexible linear macromolecules in amorphous matrix under strain, Hari L. Bhatnagar—1612(L)

Bhaumik, M. L.
Lattice work performed by excited molecules, M. L. Bhaumik and R. Hardwick—1595
Inter- and intra- (intera) molecular energy transfer to rare-earth ions in chelates, M. A. El-Sayed and M. L. Bhaumik—2391(L)

Bierstedt, P. E.
Electronic properties of a new class of highly conductive organic solids, W. J. Siemons, P. E. Bierstedt, and R. G. Kepler—3523

Bigeleisen, Jacob
Vapor–liquid equilibria of dilute solutions of HT in *e*-H_2 and DT in *e*-D_2 from the triple points to the critical temperatures of the solutions, Jacob Bigeleisen and Eugene C. Kerr—763
Quantum effects in liquid hydrogen, Jacob Bigeleisen—769
Molal volumes and zero-point energies of the isotopic liquid hydrogens, Jacob Bigeleisen—1356(L)

Birman, Joseph L.
Jahn–Teller effect and valence bond method, Joseph L. Birman—3147

Bishop, J.
Homonuclear decoupling: P^{31}–P^{31}, H. Agahigian, G. D. Vickers, J. Roscoe, and J. Bishop—1621(L)

Blais, Normand C.
Monte Carlo calculations. III. A general study of bimolecular exchange reactions, Normand C. Blais and Don L. Bunker—315

Blander, Milton
Conformal ionic mixtures, Milton Blander and S. J. Yosim—2610

Blauer, Jay
Heat of formation and entropy of $(BOCl)_3$, Jay Blauer and Milton Farber—158

Blinc, R.
Anisotropy of the fluorine chemical shift tensor in xenon tetrafluoride, R. Blinc, I. Zupančič, S. Maričič, and Z. Veksli—2109(L)

Blok, Johan
Quadrupole antishielding in the rare earths, Johan Blok and D. A. Shirley—1128(L)

Blokhra, R. L.
On the choice of phenomenological coefficients, R. P. Rastogi and R. L. Blokhra—241(L)

Bloomberg, H.
Investigation of early ionization processes in shocked xenon, D. S. Hacker and H. Bloomberg—3263

Bonamico, M.
Polyhedral clathrate hydrates. V. Structure of the tetra-*n*-butylammonium fluoride hydrate, R. K. McMullan, M. Bonamico, and G. A. Jeffrey—3295

Bonham, R. A.
Modification to the Newton–Raphson method for the fitting of nonlinear functions by least squares, T. G. Strand, D. A. Kohl, and R. A. Bonham—1307
Analytical expressions for potentials of neutral Thomas–Fermi–Dirac atoms and for the corresponding atomic scattering factors for x rays and electrons, R. A. Bonham and T. G. Strand—2200

Boorstein, Seth
Resolution of exact H_2^+ wavefunction on one-center hydrogenic basis, Seth Boorstein and Jerry Goodisman—479
Theory for zero-field splittings in aromatic hydrocarbons. III, Seth Alan Boorstein and Martin Gouterman—2443

Borchardt, Hans J.
Rare-earth tungstates and 1:1 oxytungstates, Hans J. Borchardt—504

Borkowski, R. P.
Gas-phase radiolysis of *n*-butane, R. P. Borkowski and P. J. Ausloos—818

Bose, A. N.
Structural aspects of the kinetics of four-center reactions in the vapor phase, Sidney W. Benson and A. N. Bose—3463

Boutin, Henri
Low-frequency motions of H_2O molecules in natrolite, Henri Boutin, G. J. Safford, and H. R. Danner—488(L)

Low-frequency molecular motions in polyethylene, G. J. Safford, H. R. Danner, and H. Boutin—1134(L)
Study of low-frequency molecular motions in HF, KHF_2, KH_3F_4, and NaH_3F_4, Henri Boutin, G. J. Safford, and Velko Brajovic—3135

Bovey, F. A.
Polymer NMR spectroscopy. X. The use of H^1–H^1 spin decoupling in the elucidation of polymer structure, F. A. Bovey, E. W. Anderson, D. C. Douglass, and J. A. Manson—1199

Bowles, Billy F.
Melting and polymorphism in $SbCl_3$ and $SbBr_3$, Billy F. Bowles, Gene J. Scott, and Stanley E. Babb, Jr.—831

Boyd, Richard H.
Erratum and comment: The extension of Stokes' law of ionic motion to include the effect of dielectric relaxation, Richard H. Boyd [35, 1281 (1961)]—2376(L)

Brackett, J. W.
Direct determination of scattering phase shifts from differential cross sections, J. W Brackett, C R. Mueller, and W. A. Sanders—2564

Brajovic, Velko
Study of low-frequency molecular motions in HF, KHF_2, KH_3F_4, and NaH_3F_4, Henri Boutin, G. J. Safford, and Velko Brajovic—3135

Brandt, W. W.
Polymer segmental motion as related to hindered rotation, W. W. Brandt—3327

Braun, Charles L.
Internal conversion from upper electronic states to the first excited singlet state of benzene, toluene, *p*-xylene, and mesitylene, Charles L. Braun, Shunji Kato, and Sanford Lipsky—1645

Bray, P. J.
Electron-spin resonance studies of irradiated glasses containing boron, Sook Lee and P. J. Bray—2863

Breckenridge, William
Recoil tritium reactions: variations in hot abstraction yield with C–H bond type, William Breckenridge, John W. Root, and F. W. Rowland—2374(L)

Breeze, J. C.
Shock-wave integrated intensity measurements of the 2.7-micron CO_2 band between 1200° and 3000°K, J. C. Breeze and C. C. Ferriso—2619

Brewer, R. G.
Polarization of the $\pi^* \rightarrow \pi$ and $\pi^* \rightarrow n$ phosphorescence spectra of *N*-heterocyclics, M. A. El-Sayed and R. G. Brewer—1623

Brey, Wallace S., Jr.
Temperature dependence of fluorine nuclear spin–spin coupling constants, Wallace S. Brey, Jr., and K. C. Ramey—844(L)

Brith, M.
Removal of orbital degeneracy in an asymmetric molecular environment, M. Brith and O. Schnepp—2714

Brodowsky, Horst
Statistical mechanics of cross-linked polymers: formation of the infinite network, Horst Brodowsky and Stephen Prager—1103

Broida, H. P.
Short-duration visible afterglow in helium, Arthur L. Schmeltekopf, Jr., and H. P. Broida—1261
ν_3 vibration of methane in condensed oxygen, nitrogen, and argon, Stanley Abramowitz and H. P. Broida—2383(L)

Brot, C.
Comment on "Dispersion at millimeter wavelengths in methyl and ethyl alcohols," C. Brot and M. Magat—841(L)

Brown, Farrell B.
Vibrational spectra and the inversion phenomenon in cyanamide and deuterated cyanamide, William H. Fletcher and Farrell B. Brown—2478

Brown, L. C.
Electron spin resonance study of some organic photoconductors, B.-Y. Cho, R. C. Nelson, and L. C. Brown—499

Brown, Thomas H.
Ion radicals of methyl-substituted benzenes: temperature dependence of spin and charge densities, Thomas H. Brown and Martin Karplus—1115

Büchler, Alfred
Gaseous metaborates. I. Mass-spectrometric study of the vaporization of lithium and sodium metaborates, Alfred Büchler and Joan B. Berkowitz-Mattuck—286
Gaseous metaborates. II. Infrared spectra of alkali metaborate vapors, Alfred Büchler and Edward P. Marram—292
Determination of the geometry of lithium oxide, $Li_2O(g)$, by electric deflection, Alfred Büchler, James L. Stauffer, William Klemperer, and Lennard Wharton—2299
Mass-spectrometric investigation of the oxidation of molybdenum and tungsten, Joan B. Berkowitz-Mattuck, Alfred Büchler, John L. Engelke, and Steven N. Goldstein—2722

Bueche, F.
Entanglement effects in concentrated polymer solutions from viscosity measurements, F. Bueche, C. J. Coven, and B. J. Kinzig—128

Buff, Frank P.
Statistical mechanical theory of double-layer structure and properties, Frank P. Buff and Frank H. Stillinger, Jr.—1911

Buijs, K.
Near-infrared studies of the structure of water. I. Pure water, K. Buijs and G. R. Choppin—2035
Near-infrared studies of the structure of water. II. Ionic solutions, G. R. Choppin and K. Buijs—2042

Bunker, Don L.
Monte Carlo calculations. III. A general study of bimolecular exchange reactions, Normand C. Blais and Don L. Bunker—315

Burak, Itamar
Spectrum of N_3^- in solution, Itamar Burak and Avner Treinin—189

Butler, C. T.
Variation of coloration rates and luminescence in Harshaw potassium chloride, C. T. Butler, W. A. Sibley, and E. Sonder—242(L)

Cabana, A.
Vibration–rotation spectra of CH_4 and CD_4 impurities i xenon, krypton, and argon crystals, A. Cabana, G. B Savitsky, and D. F. Hornig—2942

Califano, S.
Infrared spectra in polarized light and vibrational assig

ment of the infrared-active modes of pyrene and pyrene-d_{10}, S. Califano and G. Abbondanza—1016

Caris, J. C.
Indirect observation of singlet–triplet absorption in anthracene crystals, P. Avakian, E. Abramson, R. G. Kepler, and J. C. Caris—1127(L)

Carlson, Frederick F.
Paramagnetic resonance of nitrogen atoms in x-ray-irradiated sodium azide, Frederick F. Carlson—1206

Carlson, Thomas A.
Fragmentation of the excited parent ions, $[CH_3Kr^{83}]^+$ and $[CH_3O^{18}]^-$, following the β^- decay of CH_3Br^{83} and the β^+ decay of CH_3F^{18}, Thomas A. Carlson and R. Milford Shite—1748

Carr, E. F.
Influence of an electric field on the dielectric loss of the liquid crystal *p*-azoxyanisole, E. F. Carr—1979

Carroll, H. F.
Studies with a single-pulse shock tube. II. The thermal decomposition of perfluorocyclobutane, Assa Lifshitz, H. F. Carroll, and S. H. Bauer—1661

Carroll, P. K.
Isotopic shifts in some ultraviolet systems of N_2, P. K. Carroll and D. Mahon-Smith—237(L)

Cashion, J. K.
Testing of diatomic potential-energy functions by numerical methods, J. K. Cashion—1872

Cavanaugh, J. R.
Note on the exact analysis of three-spin systems, J. R. Cavanaugh—2378(L)

Chakravarty, A. S.
Zero-field splitting in $3d^5$ ions, A. S. Chakravarty—1004

Chan, Sunney I.
Primary process in the photolysis of nitrogen dioxide at 4047 Å and a spectroscopic–photochemical determination of the dissociation energy, James N. Pitts, Jr., James H. Sharp, and Sunney I. Chan—238(L)
Oscillators perturbed by Gaussian barriers, Sunney I. Chan and David Stelman—545

Chang, T. T.
Magnetic resonance of Mn_2^+-doped LiF crystals, T. T. Chang, W. H. Tanttila, and J. S. Wells—2453

Chen, Joseph C. Y.
Unitary operator formalism of the eigenvalue problems, Joseph C. Y. Chen—3167

Chesnut, D. B.
Fermion behavior of one-dimensional excitons, D. B. Chesnut and A. Suna—146

Chesnut, Dwayne A.
Monte Carlo calculations for the two-dimensional triangular lattice gas: supercritical region, Dwayne A. Chesnut—2081

Chiba, Takehiko
Deuteron magnetic resonance study of barium chlorate monohydrate, Takehiko Chiba—947

Chiu, Ying-Nan
Zero-field splittings in some triplet-state aromatic molecules, Ying-Nan Chiu—2736
Carbon $2p_z$ multiple-center dipolar interaction integrals in the matrix element over LCAO molecular orbitals, Ying-Nan Chiu—2749

Cho, B.-Y.
Electron spin resonance study of some organic photoconductors, B.-Y. Cho, R. C. Nelson, and L. C. Brown—499

Choi, Sang-il
On the excess electron and hole band structures and carrier mobility in naphthalene, anthracene, and several polyphenyls, Joseph L. Katz, Stuart A. Rice, Sang-il Choi, and Joshua Jortner—1683
Triplet exciton bands in aromatic crystals, Joseph L. Katz, Joshua Jortner, Sang-il Choi, and Stuart A. Rice—1897(L)

Choppin, G. R.
Near-infrared studies of the structure of water. I. Pure water, K. Buijs and G. R. Choppin—2035
Near-infrared studies of the structure of water. II. Ionic solutions, G. R. Choppin and K. Buijs—2042

Christy, R. W.
Thermoelectric power of CuCl containing $CdCl_2$, Y. W. Hsueh and R. W. Christy—3519

Chung, Alice L. H.
SPO (split-*p*-orbital) method. IV. Calculations for the $(2p)^3$ state of helium, Michael J. S. Dewar and Alice L. H. Chung—1741

Chung, K. T.
Erratum: Asymmetric-top vibration–rotation Hamiltonians, K. T. Chung and Paul M. Parker [**38,** 8 (1963)]—240(L)

Clark, K. C.
Ultraviolet spectra of the nitrogen pink afterglow, C. E. Fairchild, A. B. Prag, and K. C. Clark—794
Excitation mechanism for the nitrogen pink afterglow, A. B. Prag and K. C. Clark—799

Clementi, Enrico
Correlation energy for atomic systems. II. Isoelectronic series with 11 to 18 electrons, Enrico Clementi—175
Self-consistent-field wavefunctions for the N_3^- and NO_2^+ molecules, Enrico Clementi and A. D. McLean—323
Correlation energy in the CH_4 molecule, Enrico Clementi—487(L)

Clendenin, W. W.
Dissociation of H_2 and other diatomic molecules by neutron bombardment, W. W. Clendenin—2283

Cleveland, Forrest F.
Erratum: Potential energy constants, rotational distortion constants, and thermodynamic properties of methylacetylenes, P. N. Daykin, S. Sundaram, and Forrest F. Cleveland [**37,** 1087 (1962)]—3156(L)

Clinton, William L.
Forces in molecules. III. Analysis of an empirical potential function, William L. Clinton and Sandra D. Frattali—3316

Cobb, Thomas B.
High-resolution NMR spectrum of chrysene, J. D. Memory and Thomas B. Cobb—2386(L)
Erratum: High-resolution NMR spectrum of 1,2-benzanthracene, J. D. Memory and Thomas B. Cobb [**38,** 1453 (1964)]—3155(L)

Coekelbergs, R.
On the kinetics of chemisorption, R. Coekelbergs, A. Frennet, G. Lienard, and P. Resibois—585

Cole, George D.
Positronium decay in cholesteryl acetate, George D. Cole and William W. Walker—850(L)
Cole, Robert H.
Dielectric constant and interactions of polar molecules, Robert H. Cole—2602
Coleman, Bernard D.
Statistics of irreversible termination in homogeneous anionic polymerization, Bernard D. Coleman, Fred Gornick, and George Weiss—3233
Collins, R. L.
Mössbauer studies of iron organometallic complexes. I. Iron tetracarbonyl complexes, R. L. Collins and R. Pettit—3433
Colombo, L.
Infrared spectra in polarized light of acenaphthene crystals and assignment of molecular vibrations, L. Colombo—1942
Colwell, J. H.
Thermodynamic properties of CH_4 and CD_4. Interpretation of the properties of the solids, J. H. Colwell, E. K. Gill, and J. A. Morrison—635
Condrate, Robert A.
Infrared spectra of metal chelate compounds. IX. A normal coordinate analysis of dithiocarbamato complexes, Kazuo Nakamoto, Junnosuke Fujita, Robert A. Condrate, and Yukiyoshi Morimoto—423
Connick, Robert E.
Coordination numbers of beryllium and aluminum ions in aqueous solutions, Robert E. Connick and Daniel N. Fiat—1349(L)
Conord, A. E.
Distribution of dielectric relaxation times in glycerol– and butanediol 1,3–*n*-propanol mixtures, G. E. McDuffie, Jr., J. T. LaMacchia, and A. E. Conord—1878
Conway, B. E.
Kinetic theory of adsorption of intermediates in electrochemical catalysis, E. Gileadi and B. E. Conway—3420
Coogan, C. K.
NMR studies of phase transitions. I. NaSH, C. K. Coogan, Geneva G. Belford, and H. S. Gutowsky—3061
Cooper, Jeanette R.
Variation of electrical resistivity of cubic tantalum carbide with composition, Jeanette R. Cooper and Richard L. Hansler—248(L)
Coriell, Sam R.
Potential and effective diffusion constant in a polyelectrolyte solution, Sam R. Coriell and Julius L. Jackson—2418
Cormia, R. L.
Melting of gallium and bismuth, J. D. Mackenzie and R. L. Cormia—250(L)
Cornille, Marguerite
Calculation of x-ray and electron intensities scattered by the NH_3 and H_2O molecules, Claude Tavard, Marcel Rouault, Monique Roux, and Marguerite Cornille—2396(L)
Cornwell, C. D.
Collision-narrowing technique for NMR studies of gases at moderate pressures, Louis G. Alexakos and C. D. Cornwell—1616(L)
Cotts, R. M.
ESR measurement of spin susceptibility of graphite in a low magnetic field, R. C. Wayne and R. M. Cotts—1337
Coven, C. J.
Entanglement effects in concentrated polymer solutions from viscosity measurements, F. Bueche, C. J. Coven, and B. J. Kinzig—128
Craig, R. S.
Structural and magnetic characteristics of $TiFe_2$–$ZrFe_2$ and $ZrCo_2$–$ZrFe_2$ alloys, E. Piegger and R. S. Craig—137
Magnetic characteristics of Tb–Y and Ho–Y solid solutions, Sidney Weinstein, R. S. Craig, and W. E. Wallace—1449
Cundall, R. B.
Photosensitized *cis–trans* isomerization of butene-2, R. B. Cundall, F. J. Fletcher, and D. G. Milne—3536(L)
Curl, R. F., Jr.
Microwave spectrum of methyl isocyanate, R. F. Curl, Jr., V. M. Rao, K. V. L. N. Sastry, and Jimmie A. Hodgeson—3335
Current, J. H.
Decomposition of chemically activated ethyl-d_1 radicals, J. H. Current, B. S. Rabinovitch, C. A. Heller, and A. S. Gordon—3535(L)
Cuthbert, J. D.
NMR studies of hydrated sodium tetraborate minerals. II. Na^{23} sites in borax and tincalconite, J. D. Cuthbert and H. E. Petch—1247
Cuttitta, Frank
Antiferromagnetism of $UO{\cdot}2H_2O$, Titus Pankey, Frank E. Senftle, and Frank Cuttitta—1702
Cvetanović, R. J.
Unimolecular decomposition of chemically activated propyl radicals. Normal intermolecular secondary kinetic isotope effect, W. E. Falconer, B. S. Rabinovitch, and R. J. Cvetanović—40
Collisional deactivation of the excited states of oxygen atoms, H. Yamazaki and R. J. Cvetanović—1902(L)
Cyvin, B. N.
Vector methods in the theory of molecular vibrations, B. N. Cyvin, S. J. Cyvin, and L. A. Kristiansen—1967
Cyvin, S. J.
Comments on Decius' compliance matrix, S. J. Cyvin—1130(L)
Vector methods in the theory of molecular vibrations, B. N. Cyvin, S. J. Cyvin, and L. A. Kristiansen—1967
Czanderna, A. W.
Magnetic susceptibility of partially oxidized copper films at 25°C, A. W. Czanderna and H. Wieder—489(L)

Dahler, John S.
Boltzmann equation and inverse collisions. II. A model for association and dissociation, James T. O'Toole and John S. Dahler—3214
Dahlquist, John A.
Drift velocities of ions in nitrogen, John A. Dahlquist—1203
Daigre, J.
External heavy-atom spin–orbital coupling effect. IV. Intersystem crossing, S. P. McGlynn, J. Daigre, and F. J. Smith—675
Dailey, B. P.
Proton chemical shifts in polysubstituted benzenes, John S. Martin and B. P. Dailey—1722
Daly, M. C.
Structure of oriented sodium metaphosphate glass fibers, M. E. Milberg and M. C. Daly—2966

Damle, Vinayak
Theory of the effects of concentration and chain length on helix-coil equilibria in two-stranded nucleic acids, Jon Applequist and Vinayak Damle—2719
Danner, H. R.
Low-frequency motions of H_2O molecules in natrolite, Henri Boutin, G. J. Safford, and H. R. Danner—499(L)
Low-frequency molecular motions in polyethylene, G. J. Safford, H. R. Danner, and H. Boutin—1134(L)
Danon, J.
Nuclear isomer shift and covalency in iron complexes, J. Danon—236(L)
Datz, Sheldon
Atom–molecule reaction of hydrogen studies by molecular beams, Sheldon Datz and Ellison H. Taylor—1896(L)
Davidson, Ernest R.
Natural expansions of exact wavefunctions. III. The helium-atom ground state, Ernest R. Davidson—875
Davidson, Norman
Polarized absorption spectra of purines and pyrimidines, Robert F. Stewart and Norman Davidson—255
Davis, H. L.
Application of configuration interaction to the $2\,^1S$ state of helium. II, H. L. Davis—1183
Radial limit in the configuration-interaction method for the $1\,^1S$ state of the helium isoelectronic sequence, H. L. Davis—1827
Daykin, P. N.
Erratum: Potential energy constants, rotational distortion constants, and thermodynamic properties of methylacetylenes, P. N. Daykin, S. Sundaram, and Forrest F. Cleveland [**37**, 1087 (1962)]—3156(L)
Decius, J. C.
Answer to "Comments on Decius' compliance matrix," J. C. Decius—1130(L)
de Heer, J.
Studies on the alternant molecular orbital methods. V. A many-parameter energy expression for states with different multiplicities; application to benzene, J. de Heer and R. Pauncz—2314
Dehl, Ronald
Electron spin resonance spectra of cyclic ketyls and *ortho*-semiquinones, Ronald Dehl and George K. Fraenkel—1793
Del Greco, F. P.
Experimental oscillator strength of OH, $^2\Sigma^+ \rightarrow {}^2\pi$, by a chemical method, D. M. Golden, F. P. Del Greco, and F. Kaufman—3034
deMaeyer, L.
Kinetics of the reaction between solvated electrons and water in ethylenediamine, R. R. Dewald, J. L. Dye, M. Eigen, and L. deMaeyer—2388(L)
Dempsey, E.
Calculation of surface distortion in an alkali halide crystal bounded by a free {100} face, G. C. Benson, P. I. Freeman, and E. Dempsey—302
Denney, D. J.
Dielectric relaxation in the 1-propanol-2-methylpentane system, D. J. Denney and J. W. Ring—1268
De Poorter, Gerald L.
Energy exchange between a hot tungsten surface and cold gases, Gerald L. De Poorter and Alan W. Searcy—925
Derwish, G. A. W.
Ion-molecule reactions in gaseous ammonia, G. A. W. Derwish, A. Galli, A. Giardini-Guidoni, and G. G. Volpi—1599
Dever, D. F.
Infrared spectra, and the structures and thermodynamics of gaseous LiO, Li_2O, and Li_2O_2, David White, K. S. Seshadri, D. F. Dever, D. E. Mann, and M. J. Linevsky—2463
Devlin, J. Paul
Urey–Bradley "nonbonded" forces, J. Paul Devlin—2385(L)
DeVries, R. C.
Morphological development of aluminum oxide crystals grown by vapor deposition, G. W. Sears and R. C. DeVries—2837
Dewald, R. R.
Kinetics of the reaction between solvated electrons and water in ethylenediamine, R. R. Dewald, J. L. Dye, M. Eigen, and L. deMaeyer—2388(L)
Dewan, R. K.
Role of hydrodynamic interaction in the diffusion of *n*-alkanes in carbon tetrachloride, R. K. Dewan and K. E. Van Holde—1820
Dewar, Michael J. S.
SPO (split-*p*-orbital) method. IV. Calculations for the $(2p)^2$ state of helium, Michael J. S. Dewar and Alice L. H. Chung—1741
Dibeler, Vernon H.
Metastable transitions in mass spectra of methane and the deuteromethanes, Vernon H. Dibeler and Henry M. Rosenstock—1326
Mass spectra and metastable transitions of H_2S, HDS, and D_2S, Vernon H. Dibeler and H. M. Rosenstock—3106
Diesen, R. W.
Mass spectral studies of kinetics behind shock waves. I. Thermal dissociation of chlorine, R. W. Diesen and W. J. Felmlee—2115
Mass spectral studies of kinetics behind shock waves. II. Thermal decomposition of hydrazine, R. W. Diesen—2121
Dietrich, M. W.
Erratum: Nuclear magnetic resonance studies of electron transfer between tris(2,2′-dipyridyl)osmium(II) and (III) ions, between bis(cyclopentadienyl)iron(II) and (III) ion, and between tris(1,10-phenanthroline)iron (II) and (III) ions, M. W. Dietrich and A. C. Wahl [**38**, 1591 (1963)]—2376(L)
Dillon, J. F., Jr.
Crystal-field spectra of $d^{3,7}$ ions. III. Spectrum of Cr^{3+} in various octahedral crystal fields, D. L. Wood, J. Ferguson, K. Knox, and J. F. Dillon, Jr.—890
Dobrott, Robert D.
Molecular, crystal, and valence structures of Iso-$B_{18}H_{22}$, Paul G. Simpson, Kirsten Folting, Robert D. Dobrott, and William N. Lipscomb—2339
Dole, Malcolm
Conditions for first- or second-order kinetics during multiple zone reactions, Malcolm Dole and Mitio Inokuti—310
Donath, Wilm E.
Atomic calculations. II. Polarizabilities and London force constants for F^-, Ne, and Na, Wilm E. Donath—2685

Donn, B.
Structure of zinc oxide nuclei, G. W. Sears, R. Powell, and B. Donn—2248
Doorenbos, H. E.
ESR of the N_2F_4–NF_2 equilibrium, H. E. Doorenbos and B. R. Loy—2393(L)
Dorman, F. H.
Ionization potentials of doubly charged oxygen and nitrogen, F. H. Dorman and J. D. Morrison—1906(L)
Douglass, Dean C.
Polymer NMR spectroscopy. X. The use of H^1–H^1 spin decoupling in the elucidation of polymer structure, F. A. Bovey, E. W. Anderson, D. C. Douglass, and J. A. Manson—1199
NMR shift and diffusion study of electrolytes in 50% dioxane–water mixtures, Anthony Fratiello and Dean C. Douglass—2017
Volume magnetic susceptibility measurements by NMR, Dean C. Douglass and Anthony Fratiello—3161(L)
Dows, David A.
Infrared absorption intensities in mixed crystals of benzene and deuterobenzene, J. Leland Hollenberg and David A. Dows—495
Dreizler, Helmut
Tables for the analysis of rotational spectra containing centrifugal distortion and torsional splitting, Helmut Dreizler and Rainer Peter—1132(L)
Dubois, Jean T.
Energy-transfer studies by spectrophotofluorometric method, Francis Wilkinson and Jean T. Dubois—377
Radiative lifetime of triplet biacetyl, Jean T. Dubois and Francis Wilkinson—899
Duncan, A. B. F.
Erratum: Electronic structure of ammonia, A. B. F. Duncan [**27,** 423 (1957)]—240(L)
Dye, J. L.
Kinetics of the reaction between solvated electrons and water in ethylenediamine, R. R. Dewald, J. L. Dye, M. Eigen, and L. deMaeyer—2388(L)

Eargle, D. H., Jr.
Electron spin resonance study of the anion radicals of *cis*- and *trans*-thianthrene-5,10-dioxide, E. T. Kaiser and D. H. Eargle, Jr.—1353(L)
Eaton, D. R.
Proton spin–spin coupling constants from the NMR spectra of paramagnetic molecules, D. R. Eaton, A. D. Josey, W. D. Phillips, and R. E. Benson—3513
Ebersole, S. J.
Proton NMR studies of CHDO and CH_2O, B. L. Shapiro, R. M. Kopchik, and S. J. Ebersole—3154(L)
Eckert, C. A.
On the vapor–liquid equilibrium for the helium–hydrogen system, C. A. Eckert and J. M. Prausnitz—246(L)
Edmiston, Clyde
Relation of Sinanoğlu's theory of "exact pairs" to the first iteration, beyond SCF, in separated-pair theory, Clyde Edmiston—2394(L)
Ehrhardt, Helmut
Dissociative charge transfer in He^+–O_2 and He^+–N_2 collisions, R. F. Stebbings, A. C. H. Smith, and Helmut Ehrhardt—968
Eigen, M.
Kinetics of the reaction between solvated electrons and water in ethylenediamine, R. R. Dewald, J. L. Dye, M. Eigen, and L. deMaeyer—2388(L)
Eisenberg, Adi
Equilibrium polymerization under pressure: the case of sulfur, Adi Eisenberg—1852
Eisenstein, J. C.
Spectrum of Er^{3+} in $LaCl_3$, J. C. Eisenstein—2128
Spectrum of Nd^{3+} in $LaCl_3$, J. C. Eisenstein—2134
Eisenthal, K. B.
Triplet–triplet transfer in plastic at 298° and 77°K, K. B. Eisenthal and R. Murashige—2108(L)
Ellis, W. P.
Fluoride interference films on uranium dioxide. I. The kinetically derived optical equation, W. P. Ellis—1172
Fluoride interference films on uranium dioxide. II. Kinetics of the hydrofluorination reaction, W. P. Ellis and B. W. Roberts—1176
Ellison, Frank O.
Use of rescaled eigenfunctions as variational wavefunctions in calculations on atoms and ions, Frank O. Ellison and Norman T. Huff—2051
El-Sayed, M. A.
Polarization of the triplet–triplet absorption spectrum of some polyacenes by the method of photoselection, M. A. El-Sayed and T. Pavlopoulos—834
Polarization of the $\pi^* \rightarrow \pi$ and $\pi^* \rightarrow n$ phosphorescence spectra of *N*-heterocyclics, M. A. El-Sayed and R. G. Brewer—1623
Intramolecular heavy-atom effect on the polarization of naphthalene phosphorescence, M. A. El-Sayed and T. Pavlopoulos—1899(L)
Inter- and intra- (intera) molecular energy transfer to rare-earth ions in chelates, M. A. El-Sayed and M. L. Bhaumik—2391(L)
Engelke, John L.
Mass-spectrometric investigation of the oxidation of molybdenum and tungsten, Joan B. Berkowitz-Mattuck, Alfred Büchler, John L. Engelke, and Steven N. Goldstein—2722
Englman, Robert
Temperature and pressure dependence of the Co^{59} nuclear resonance chemical shift, George B. Benedek, Robert Englman, and John A. Armstrong—3349
Erath, Edward H.
Lattice vibrations and specific heats of several rare-earth ethylsulfates, Eugene Y. Wong and Edward H. Erath—1629
Esterowitz, Leon
Rotational transitions and centrifugal distortion in the uhf spectrum of formaldehyde, Leon Esterowitz—247(L)
Ettinger, Raymond
Mass spectra and appearance potentials of diazirine and diazomethane, Grover S. Paulett and Raymond Ettinger—825; 3534(E)
Exton, Reginald J.
Absorption spectrum of Cs in the presence of isomeric hydrocarbons, Oleg Jefimenko and Reginald J. Exton—229
Eyring, Henry
Improved calculation of quasiequilibrium reaction rate constants, S. H. Lin and Henry Eyring—1577

Faber, M. Patricia
Anisotropic g tensor in polycrystalline derivatives of tetrachlorosemiquinone, Roger J. Faber and M. Patricia Faber—3541(L)
Faber, Roger J.
Anisotropic g tensor in polycrystalline derivatives of tetrachlorosemiquinone, Roger J. Faber and M. Patricia Faber—3541(L)
Fairchild, C. E.
Ultraviolet spectra of the nitrogen pink afterglow, C. E. Fairchild, A. B. Prag, and K. C. Clark—794
Falconer, W. E.
Unimolecular decomposition of chemically activated propyl radicals. Normal intermolecular secondary kinetic isotope effect, W. E. Falconer, B. S. Rabinovitch, and R. J. Cvetanović—40
Electron spin resonance spectrum of XeF in γ-irradiated xenon tetrafluoride, J. R. Morton and W. E. Falconer—427
Farber, Milton
Heat of formation and entropy of $(BOCl)_3$, Jay Blauer and Milton Farber—158
Fehsenfeld, Fred C.
Cyclotron resonance in slightly ionized gases, Fred C. Fehsenfeld—1653
Feldmann, Tova
Dihalide ions trapped in glasses, Tova Feldmann and Avner Treinin—1352(L)
Felmlee, W. J.
Mass spectral studies of kinetics behind shock waves. I. Thermal dissociation of chlorine, R. W. Diesen and W. J. Felmlee—2115
Fenimore, C. P.
Destruction of acetylene in flames with oxygen, C. P. Fenimore and G. W. Jones—1514
Fenn, John B.
Separation of gas mixtures in supersonic jets, Victor H. Reis and John B. Fenn—3240
Ferguson, J.
Crystal-field spectra of $d^{3,7}$ ions. I. Electronic absorption spectrum of $CoCl_4^=$ in three crystalline environments, J. Ferguson—116
Crystal-field spectra of d^3, d^7 ions. II. $KCoF_3$, $CoCl_2$, $CoBr_2$, and $CoWO_4$, J. Ferguson, D. L. Wood, and K. Knox—881
Crystal-field spectra of $d^{3,7}$ ions. III. Spectrum of Cr^{3+} in various octahedral crystal fields, D. L. Wood, J. Ferguson, K. Knox, and J. F. Dillon, Jr.—890
Optical absorption of magnetic domains in NiF_2, J. Ferguson, H. J. Guggenheim, and D. L. Wood—3149(L)
Ferriso, C. C.
Shock wave integrated intensity measurements of the 2.7 micron CO_2 band between 1200° and 3000°K, J. C. Breeze and C. C. Ferriso—2619
Fessenden, Richard W.
Electron spin resonance studies of transient alkyl radicals, Richard W. Fessenden and Robert H. Schuler—2147
Feuer, P.
Theory of the thermal accommodation coefficients of a diatomic gas, P. Feuer—1311
Fiat Daniel N.
Coordination numbers of beryllium and aluminum ions in aqueous solutions, Robert E. Connick and Daniel N. Fiat—1349(L)
Fine, Joseph
Kinetics of desorption. III. Rb^+, K^+, and Na^+ on rhenium, Milton D. Scheer and Joseph Fine—1752
Finn, Edward J.
Vibrational energy levels of ionic molecules bound by classical forces, Edward J. Finn—2423
Fisher, R. A.
Correlation of magnetothermodynamic data with a theoretical model. Powdered $CoSO_4 \cdot 7H_2O$ over the range 0 to 100 kG above 1.2°K, R. A. Fisher and E. W. Hornung—939
Fixman, Marshall
Electron mobility in crystals, Marshall Fixman—1813
Viscosity of polymer solutions, James M. Peterson and M. Fixman—2516
Fletcher, F. J.
Photosensitized *cis–trans* isomerization of butene-2, R. B. Cundall, F. J. Fletcher, and D. G. Milne—3536(L)
Fletcher, William H.
Vibrational spectra and the inversion phenomenon in cyanamide and deuterated cyanamide, William H. Fletcher and Farrell B. Brown—2478
Flournoy, Philip A.
Applications of attenuated-total-reflection spectroscopy to absolute intensity measurements, Philip A. Flournoy—3156(L)
Flygare, W. H.
Molecular rotation in the solid state. Theory of rotation of trapped molecules in rare-gas lattices, W. H. Flygare—2263
Folting, Kirsten
Molecular, crystal, and valence structures of Iso-$B_{18}H_{22}$, Paul G. Simpson, Kirsten Folting, Robert D. Dobrott, and William N. Lipscomb—2339
Ford, H. W.
Reaction between nitric oxide and ozone in a supersonic nozzle, J. E. Marte, E. Tschuikow-Roux, and H. W. Ford—3277
Forman, Richard A.
Quadrupole coupling constants from the microwave spectrum of hydrazoic acid, Richard A. Forman and David R. Lide, Jr.—1133(L)
Nitrogen NMR chemical shifts In the azide ion, R. A. Forman—2393(L)
Forrester, J. D.
Crystal structure of cerium magnesium nitrate hydrate, Allan Zalkin, J. D. Forrester, and David H. Templeton—2881
Forsén, Sture
Method for the analysis of high-resolution NMR spectra employing transitory selective saturation, Ragnar A. Hoffman, Bo Gestblom, and Sture Forsén—486(L)
Study of moderately rapid chemical exchange reactions by means of nuclear magnetic double resonance, Sture Forsén and Ragnar A. Hoffman—2892
Fraenkel, George K.
Theory of linewidths in electron spin resonance spectra, Jack H. Freed and George K. Fraenkel—326

Analysis of the electron spin resonance spectra of aromatic nitrosubstituted anion radicals, Philip H. Rieger and George K. Fraenkel—609
Electron spin resonance spectra of cyclic ketyls and *ortho*-semiquinones, Ronald Dehl and George K. Fraenkel—1793

Fraenkel, Gideon
Structure of the ion pairs of anilinium salts in solution determined by NMR, Gideon Fraenkel—1614(L)

Fratiello, Anthony
NMR shift and diffusion study of electrolytes in 50% dioxane–water mixtures, Anthony Fratiello and Dean C. Douglass—2017
Volume magnetic susceptibility measurements by NMR, Dean C. Douglass and Anthony Fratiello—3161(L)

Frattali, Sandra D.
Forces in molecules. III. Analysis of an empirical potential function, William L. Clinton and Sandra D. Frattali—3316

Freed, Jack H.
Theory of linewidths in electron spin resonance spectra, Jack H. Freed and George K. Fraenkel—326

Freeman, D. E.
Infrared spectra of the germyl halides, D. E. Freeman, K. H. Rhee, and M. K. Wilson—2908

Freeman, G. R.
Yield of "free ions" in gamma-irradiated liquid saturated hydrocarbons, G. R. Freeman—988
Effect of electric field strength on the gamma-radiation-induced conductance of liquid alkanes, G. R. Freeman—1580
Comment on the photon beam intensity dependence of induced conductivity in solid insulators and semiconductors, G. R. Freeman—3537(L)

Freeman, P. I.
Calculation of surface distortion in an alkali halide crystal bounded by a free {100} face, G. C. Benson, P. I. Freeman, and E. Dempsey—302

Freeman, R.
Indirect detection of weak or hidden nuclear magnetic resonance signals, R. Freeman and W. A. Anderson—806
Assignment of NMR spectra with the aid of double-quantum transitions, W. A. Anderson, R. Freeman, and C. A. Reilly—1518

Frennet, A.
On the kinetics of chemisorption, R. Coekelbergs, A. Frennet, G. Lienard, and P. Resibois—585

Frensdorff, H. Karl
Copolymerization as a Markov chain, H. Karl Frensdorff and Rudolph Pariser—2303

Friedman, L.
Neon–hydrogen ion-molecule reactions, T. F. Moran and L. Friedman—2491

Friedmann, H.
Pressure-induced shifts of molecular lines in emission and in absorption, J. H. Jaffe, H. Friedmann, M. A. Hirshfeld, and A. Ben-Reuven—1447

Friedrich, H. Bruce
Absolute infrared intensities in some crystalline hydrogen halides, H. Bruce Friedrich and Willis B. Person—811

Fromhold, A. T., Jr.
Space charge in growing oxide films. III. Multispecies diffusion, A. T. Fromhold, Jr., 2278

Frost, A. A.
Energy of the lithium atom by the least-squares local energy method, B. M. Gimarc and A. A. Frost—1698

Frysinger, G. R.
Effect of pressure on the activation energy of electrical conduction in aqueous solution, R. A. Horne, B. R. Myers, and G. R. Frysinger—2666

Fujimoto, Minoru
Electron spin resonance of a radical in irradiated single crystals of itaconic acid, Minoru Fujimoto—846(L)

Fujita, Junnosuke
Infrared spectra of metal chelate compounds. IX. A normal coordinate analysis of dithiocarbamato complexes, Kazuo Nakamoto, Junnosuke Fujita, Robert A. Condrate, and Yukiyoshi Morimoto—423

Fujiyama, T.
Electrostatic interaction between the two dipoles of substituents in the syndiotactic and the isotactic vinyl polymers, T. Fujiyama and T. Shimanouchi—1138(L)

Futrell, Jean H.
Dissociative charge-exchange reactions of rare-gas ions with propane, Jean H. Futrell and Thomas O. Tiernan—2539

Gaines, G. L., Jr.
Preparation and properties of monomolecular films of chlorophyll *a* and pheophytin *a*, W. D. Bellamy, G. L. Gaines, Jr., and A. G. Tweet—2528

Galli, A.
Ion–molecule reactions leading to NO^+ formation, A. Galli, A. Giardini-Guidoni, and G. G. Volpi—518
Ion-molecule reactions in gaseous ammonia, G. A. W. Derwish, A. Galli, A. Giardini-Guidoni, and G. G. Volpi—1599

Gangemi, Francis A.
Effect of isotopic substitution on the dipole moment of molecules by symmetrical configuration, Francis A. Gangemi—3490

Gans, P. J.
Erratum: Monte Carlo study of coiling molecules. II, F. T. Wall, S. Windwer, and P. J. Gans [**38**, 2228 (1963)]—1900(L)

Garland, Carl W.
Elastic constants of ammonium chloride near the lambda point, Carl W. Garland and Joseph S. Jones—2874

Gatz, Carole R.
Chemi-ionization in atomic O and N mixtures, Carole R. Gatz, Robert A. Young, and Robert L. Sharpless—1234

Geller, Murray
Two-center integrals over solid sperical harmonics, Murray Geller—84
Two-electron, one- and two-center integrals, Murray Geller—853(L)

Gestblom, Bo
Method for the analysis of high-resolution NMR spectra employing transitory selective saturation, Ragnar A. Hoffman, Bo Gestblom, and Sture Forsén—486(L)

Ghormley, J. A.
On the formation of hydrogen sesquioxide, H_2O_3, in free-radical reactions on cold surfaces, J. A. Ghormley—3539(L)

Giardini-Guidoni, A.
Ion–molecule reactions leading to NO^+ formation, A. Galli, A. Giardini-Guidoni, and G. G. Volpi—518
Ion-molecule reactions in gaseous ammonia, G. A. W. Derwish, A. Galli, A. Giardini-Guidoni, and G. G. Volpi—1599

Giedt, R. R.
Dissociation of Cl_2 in shock waves, T. A. Jacobs and R. R. Giedt—749

Giese, Clayton F.
Dissociative ionization of CO by ion impact, Clayton F. Giese and William B. Maier, II—197
Energy dependence of cross sections for ion–molecule reactions. Transfer of hydrogen atoms and hydrogen ions, Clayton F. Giese and William B. Maier, II—739

Gileadi, E.
Kinetic theory of adsorption of intermediates in electrochemical catalysis, E. Gileadi and B. E. Conway—3420

Gill, E. K.
Thermodynamic properties of CH_4 and CD_4. Interpretation of the properties of the solids, J. H. Colwell, E. K. Gill, and J. A. Morrison—635

Gillespie, R. J.
Sulfur and silicon isotope effects in fluorine nuclear magnetic resonance spectroscopy, R. J. Gillespie and J. W. Quail—2555

Gilliland, J., Jr.
Physical and chemical effects at the anthracene–electrolyte interface due to photoelectrolysis, R. C. Jarnagin, J. Gilliland, Jr., J. S. Kim, and M. Silver—573

Gilson, D. F. R.
Nuclear magnetic resonance and molecular motion in the benzene–silver perchlorate complex, D. F. R. Gilson and C. A. McDowell—1825

Gimarc, B. M.
Energy of the lithium atom by the least-squares local energy method, B. M. Gimarc and A. A. Frost—1698

Gioumousis, G.
Extension of the Johnson–Waugh analysis of NMR relaxation in H_2 in terms of the anisotropic part of the intermolecular potential, G. Gioumousis—1620(L)

Girdhar, H. L.
Entropy of fusion of molecular complexes, R. P. Rastogi, R. K. Nigam, R. N. Sharma, and H. L. Girdhar—3042

Girifalco, L. A.
On the connection between two recent theories of thermal diffusion in crystals, L. A. Girifalco—2377(L)

Glarum, Sivert H.
Spin–orbit interactions in molecular radicals, Sivert H. Glarum—3141

Glickman, W. A.
Gas-phase complexes in hydrogen chloride, D. H. Rank, P. Sitaram, W. A. Glickman, and T. A. Wiggins—2673

Godbole, E. W.
Mass-spectrometric study of ions from the α-particle irradiation of gases at near atmospheric pressures, P. Kebarle and E. W. Godbole—1131(L)

Golden, D. M.
Experimental oscillator strength of OH, $^2\Sigma^+ \rightarrow {}^2\pi$, by a chemical method, D. M. Golden, F. P. Del Greco, and F. Kaufman—3034

Golden, Sidney
Continuous representations in the statistical theory of electronic energies, Sidney Golden and George S. Handler—1543

Goldfarb, Theodore D.
P–R maxima separations in unresolved parallel bands of symmetric- and slightly asymmetric-top molecules, Theodore D. Goldfarb—2860

Goldsmith, G. J.
Fluorescence of naphthacene vapor, R. Williams and G. J. Goldsmith—2008

Goldstein, J. H.
Computation of unique NMR parameters for ABC systems with the aid of C^{13}–H satellite spectra, R. T. Hobgood, Jr., Ralph E. Mayo, and J. H. Goldstein—2501
Diamagnetic anisotropy effects of C≡C and C≡N bonds in nuclear magnetic resonance spectroscopy, G. S. Reddy and J. H. Goldstein—3509

Goldstein, Martin
Motion of a Brownian particle in a periodic potential, Martin Goldstein—243(L)
Some thermodynamic aspects of the glass transition: free volume, entropy, and enthalpy theories, Martin Goldstein—3369

Goldstein, Steven N.
Mass-spectrometric investigation of the oxidation of molybdenum and tungsten, Joan B. Berkowitz-Mattuck, Alfred Büchler, John L. Engelke, and Steven N. Goldstein—2722

Gomer, Robert
Field desorption of carbon monoxide from tungsten, Lynwood W. Swanson and Robert Gomer—2813

Goodfriend, P. L.
Emission and absorption spectra of OF_2–NO diffusion flame, P. L. Goodfriend and H. P. Woods—2379(L)

Goodisman, Jerry
Resolution of exact H_2^+ wavefunction on one-center hydrogenic basis, Seth Boorstein and Jerry Goodisman—479
Force calculation with Hartree–Fock wavefunction, Jerry Goodisman—2397(L)

Goodman, Lionel
Open-shell SCF triplet-state energies of polyacenes, Lionel Goodman and James R. Hoyland—1068

Gorden, R., Jr.
Effect of additives on the ionic reaction mechanism in the radiolysis of methane, P. Ausloos, S. G. Lias, and R. Gorden, Jr.—3341

Gordon, A. S.
Decomposition of chemically activated ethyl-d_1 radicals, J. H. Current, B. S. Rabinovitch, C. A. Heller, and A. S. Gordon—3535(L)

Gordon, R. G.
Molecular motion and the moment analysis of molecular spectra in condensed phases. I. Dipole-allowed spectra, R. G. Gordon—2788

Gordus, Adon A.
Interpretation of hot-atom data, Chi-hua Hsiung and Adon A. Gordus—2770(L)

Gordy, Walter
Millimeter wave spectroscopy of unstable molecular species. I. Carbon monosulfide, Roger Kewley, K. V. L. N. Sastry, Manfred Winnewisser, and Walter Gordy—2856

Gornick, Fred
Statistics of irreversible termination in homogeneous anionic polymerization, Bernard D. Coleman, Fred Gornick, and George Weiss—3233

Goscinski, S. Osvaldo
Truncated reaction operators, William J. Meath, Kenneth M. Sando, S. Osvaldo Goscinski, and Joseph O Hirschfelder—2429

Gose, Earl E.
Diffusion of three ionic species in liquid solution, Earl E. Gose—735

Gott, J. Robert
Spectroscopic study of the effect of high pressures on organic charge-transfer complexes in solution, J. Robert Gott and William G. Maisch—2229

Gottlieb, M.
Thermal conductivity of alkali-metal vapors, M. Gottlieb and R. J. Zollweg—2773(L)

Gouterman, Martin
Theory for zero-field splittings in aromatic hydrocarbons. III, Seth Alan Boorstein and Martin Gouterman—2443

Grant, R. W.
Electron transfer in dilute gold alloys, P. H. Barrett, R. W. Grant, Morton Kaplan, D. A. Keller, and D. A. Shirley—1035

Green, J. H.
Annihilation rates and collision complex of positrons in freon-12, J. H. Green and S. J. Tao—3160(L)

Green, M. S.
Numerical solutions of the convolution-hypernetted chain integral equation for the pair correlation function of a fluid. I. The Lennard-Jones (12, 6) potential, Max Klein and M. S. Green—1367

Greenberg, Jacob
Near-ultraviolet, visible, and infrared spectra of molten KSCN and NaSCN, Jacob Greenberg—3158(L)

Greene, Frank T.
Mass spectrometric detection of polymers in supersonic molecular beams, Frank T. Greene and Thomas A. Milne—3150(L)

Grob, Victor E.
Formation of negative ions in $SbCl_3$, Victor E. Grob—972

Grossweiner, L. I.
Primary mechanisms in eosin-photosensitized reactions of aromatic amino acids and ovalbumin, L. I. Grossweiner and E. F. Zwicker—2774(L)

Grubb, Eugene L.
Vanadium tetrachloride vibrational spectrum, Eugene L. Grubb and R. Linn Belford—244(L)

Grubb, H. M.
Effects of isotopic labeling and molecular structure on probability of ionization by electron impact, Seymour Meyerson, H. M. Grubb, and R. W. Vander Haar—1445

Gruber, John B.
Absorption and fluorescence spectra of $Er^{3+}(4f^{11})$ in LaF_3, William F. Krupke and John B. Gruber—1024
Analysis of the electronic spectra of neodymium ethylsulfate, John B. Gruber and Robert A. Satten—1455

Gudmundsen, R. A.
Fluorescence of europium thenoyltrifluoroacetonate. II. Determination of absolute quantum efficiency, R. A. Gudmundsen, O. J. Marsh, and E. Matovich—272

Guggenheim, H. J.
Optical absorption of magnetic domains in NiF_2, J. Ferguson, H. J. Guggenheim, and D. L. Wood—3149(L)

Gunning, H. E.
Electrophilic character of the Hg $6(^3P_1)$ atom and the mechanism of electronic energy transfer in mercury photosensitization, Yves Rousseau, O. P. Strausz, and H. E. Gunning—962

Gutowsky, H. S.
High-resolution ESR spectra of photochemically generated free radicals: the viologens, C. S. Johnson, Jr., and H. S. Gutowsky—58
Nuclear relaxation in molecular liquids containing free radicals, H. S. Gutowsky and Julia Chow Tai—208
Nuclear pure quadrupole relaxation and its temperature dependence in solids, D. E. Woessner and H. S. Gutowsky—440
Electron coupling of nuclear spins. VII. J_{FF} for 2-fluorobenzotrifluorides, H. S. Gutowsky and V. D. Mochel—1195
NMR study of the alkali hexafluorophosphates' dynamic structure, Gerald R. Miller and H. S. Gutowsky—1983
NMR studies of phase transitions. I. NaSH, C. K. Coogan, Geneva G. Belford, and H. S. Gutowsky—3061

Hacker, D. S.
Investigation of early ionization processes in shocked xenon, D. S. Hacker and H. Bloomberg—3263

Hackleman, William R.
Nuclear magnetic relaxation and diffusion in liquid SF_6, William R. Hackleman and Paul S. Hubbard—2688

Hadley, Steven G.
Radiationless triplet–singlet transitions in naphthalene, Steven G. Hadley, Howard E. Rast, Jr., and Richard A. Keller—705

Hadley, Wayne B.
Heat capacity of $MnBr_2$ between 1.7° and 20°K. Magnetic ordering in $MnBr_2$, Wayne B. Hadley and J. W. Stout—2205

Hafemann, Dennis R.
Thermodynamic properties of a monatomic hydrogen gas at high temperatures, Irwin Oppenheim and Dennis R. Hafemann—101

Hahn, Richard L.
Chemical effects of isomeric transitions: separation of the isomers of Te^{127}, Te^{129}, and Te^{131}, Richard L. Hahn—3482

Hall, T. P. P.
Investigation of the bonding of iron-group ions in fluoride crystals. II, T. P. P. Hall, W. Hayes, R. W. H. Stevenson, and J. Wilkens—35

Hall, W. F.
Thermodynamics of vaporization of lithium oxide, boric oxide, and lithium metaborate, D. L. Hildenbrand, W. F. Hall, and N. D. Potter—296

Hall, W. Keith
Hysteresis in the palladium–hydrogen system, N. A. Scholtus and W. Keith Hall—868

Halperin, A.
Optical studies of anisotropic color centers in germanium-doped quartz, A. Halperin and J. E. Ralph—63
Hameka, Hendrik F.
One-center perturbation approach to molecular electronic energies. I. Exposition of the method, Peter Hauk, Robert G. Parr, and Hendrik F. Hameka—2085
Hamill, William H.
Cross sections of ion–permanent-dipole reactions by mass spectrometry, Thomas F. Moran and William H. Hamill —1413
Hamilton, W. O.
Linear antiferromagnetism in the organic free radical 1,3-bisdiphenylene-2-phenyl allyl, W. O. Hamilton and G. E. Pake—2694
Handler, George S.
Continuous representations in the statistical theory of electronic energies, Sidney Golden and George S. Handler —1543
Hansen, Robert S.
Low-temperature limiting behavior of gas imperfections due to gas–solid interactions, Robert S. Hansen and James A. Murphy—1642
Hansler, Richard L.
Variation of electrical resistivity of cubic tantalum carbide with composition, Jeanette R. Cooper and Richard L. Hansler—248(L)
Happe, James A.
Isotropic NMR shifts in pyridine-type bases complexed with paramagnetic Ni^{II} and Co^{II} acetylacetonates, James A. Happe and Raymond L. Ward—1211
Hardwick, R.
Lattice work performed by excited molecules, M. L. Bhaumik and R. Hardwick—1595
Emission and dissociation of NO_2 in shock waves, Hiroyuki Hiraoka and R. Hardwick—2361
Harriman, John E.
Intramolecular electron transfer in bis(*p*-nitrophenyl) anions and its effect on electron spin resonance hyperfine structure, John E. Harriman and August H. Maki—778
Harris, F. E.
Potential curve for the $^2\Sigma_u^+$ state of H_2^-, Howard S. Taylor and F. E. Harris—1012
Molecular orbital studies of excited states of HeH, H. H. Michels and F. E. Harris—1464
Harris, Robert A.
Predissociation, Robert A. Harris—978
Harrison, M. C.
Use of Gaussian functions in the calculation of wavefunctions for small molecules. II. The ammonia molecule, C. M. Reeves and M. C. Harrison—11
Hart, Edward W.
Thermodynamic functions for nonuniform systems, Edward W. Hart—3075
Hartley, D. B.
Kinetics of the reaction of HI with ethyl iodide and the heat of formation of the ethyl radical, D. B. Hartley and Sidney W. Benson—132
Hasegawa, K.
Ruby-laser excited photocurrents in anthracene single crystals, K. Hasegawa and W. G. Schneider—1346(L)
Hatcher, Robert D.
Frequency distribution and the specific heat of NaCl, Elizabeth M. Arase, Robert D. Hatcher, and Jacob Neuberger—353
Hatton, J. V.
Nuclear spin–spin coupling involving heavy nuclei. The coupling between Hg^{199} and H^1 nuclei in CH_3HgX and CH_3CH_2HgX compounds, J. V. Hatton, W. G. Schneider, and W. Siebrand—1330
Hauge, E. Hiis
Virial coefficients for square-well potentials, E. Hiis Hauge—389
Hauk, Peter
One-center perturbation approach to molecular electronic energies. I. Exposition of the method, Peter Hauk, Robert G. Parr, and Hendrik F. Hameka—2085
Hayes, W.
Investigation of the bonding of iron-group ions in fluoride crystals. II, T. P. P. Hall, W. Hayes, R. W. H. Stevenson, and J. Wilkens—35
Heller, C. A.
Decomposition of chemically activated ethyl-d_1 radicals, J. H. Current, B. S. Rabinovitch, C. A. Heller, and A. S. Gordon—3535(L)
Heller, John H.
Effect of radio-frequency fields on the electrophoretic mobility of some colloids, David J. Wilkins and John H. Heller—3401
Henderson, Douglas
Hole theory of liquids and dense gases. II. Internal entropy, energy, and heat capacity, Douglas Henderson—54
Significant structure theory of fluids for a system of rigid spheres, Douglas Henderson—1857
Hernandez, G. J.
Vacuum ultraviolet absorption spectrum of diethyl ether, G. J. Hernandez—1355(L)
Hertel, G. R.
Cross sections for some gas-phase single-charge-transfer reactions of N_2^{++} and Ar^{++}, E. R. Weiner, G. R. Hertel, and W. S. Koski—3538(L)
Herzfeld, C. M.
On the nature of the crystal field approximation. II. Numerical results, R. T. Berger and C. M. Herzfeld—1122
Hexter, R. M.
Erratum and further comments: Vibrational excitons. II. Degenerate vibrations, R. M. Hexter [**36**, 2285 (1962)]—1608(L)
Higuchi, Jiro
On the effect of the bond angle in the electron spin–spin interaction. Methylene derivatives, Jiro Higuchi—1339
Electron spin–spin interaction in higher molecular spin multiplets, Jiro Higuchi—1847
Electron-spin density in irradiated oriented polyethylene, Jiro Higuchi—2366
Isotropic proton hyperfine interaction and properties of the CH bond, Jiro Higuchi—3455
Hildenbrand, Donald L.
Thermodynamics of vaporization of lithium oxide, boric oxide, and lithium metaborate, D. L. Hildenbrand, W. F. Hall, and N. D. Potter—296

Transpiration and mass spectrometric studies of equilibria involving BOF(g) and $(BOF)_3(g)$, Donald L. Hildenbrand, Lowell P. Theard, and Albert M. Saul—1973

Hiraoka, Hiroyuki

Emission and dissociation of NO_2 in shock waves, Hiroyuki Hiraoka and R. Hardwick—2361

Hirota, Kazushi

Correlation between Stokes shift and stability constant of 6,7-dihydroxynaphthalene-2-sulfonic acid metal chelates, Naoya Ono and Kazushi Hirota—1907(L)

Hirschfelder, Joseph O.

Comparison of the Hartree–Fock orbital with the first natural spin orbital for two-electron systems, George V. Nazaroff and Joseph O. Hirschfelder—715, 3155(E)

Nonuniform scaling of an approximate H_2^+ wavefunction, William J. Meath and Joseph O. Hirschfelder—1135(L); 3534(E)

Iteration-variation procedures for quantum-mechanical perturbations, Joseph O. Hirschfelder—2099

Truncated reaction operators, William J. Meath, Kenneth M. Sando, S. Osvaldo Goscinski, and Joseph O. Hirschfelder—2429

Removal of electron–electron poles from many-electron Hamiltonians, Joseph O. Hirschfelder—3145

Upper and lower bounds for ground-state second-order perturbation energy, Stephen Prager and Joseph O. Hirschfelder—3289

Hirshfeld, M. A.

Pressure-induced shifts of molecular lines in emission and in absorption, J. H. Jaffe, H. Friedmann, M. A. Hirshfeld, and A. Ben-Reuven—1447

Hobgood, R. T., Jr.

Computation of unique NMR parameters for ABC systems with the aid of C^{13}–H satellite spectra, R. T. Hobgood, Jr., Ralph E. Mayo, and J. H. Goldstein—2501

Hochstrasser, Robin M.

Transfer of triplet excitation energy in benzophenone crystals, Robin M. Hochstrasser—3153(L)

Hodgeson, Jimmie A.

Microwave spectrum of methyl isocyanate, R. F. Curl, Jr., V. M. Rao, K. V. L. N. Sastry, and Jimmie A. Hodgeson—3335

Hoffman, Ragnar A.

Method for the analysis of high-resolution NMR spectra employing transitory selective saturation, Ragnar A. Hoffman, Bo Gestblom, and Sture Forsén—486(L)

Study of moderately rapid chemical exchange reactions by means of nuclear magnetic double resonance, Sture Forsén and Ragnar A. Hoffman—2892

Hoffmann, Roald

An extended Hückel theory. I. Hydrocarbons, Roald Hoffmann—1397

Hollander, Tj.

Ionization rate constants of alkali metals in CO flames, Tj. Hollander, P. J. Kalff, and C. T. J. Alkemade—2558

Hollenberg, J. Leland

Infrared absorption intensities in mixed crystals of benzene and deuterobenzene, J. Leland Hollenberg and David A. Dows—495

Horne, R. A.

Effect of pressure on the activation energy of electrical conduction in aqueous solution, R. A. Horne, B. R. Myers, and G. R. Frysinger—2666

Hornig, D. F.

Overtone frequency and double excitation in the hydrogen chloride crystal, A. Ron and D. F. Hornig—1129(L)

Vibration–rotation spectra of CH_4 and CD_4 impurities in xenon, krypton, and argon crystals, A. Cabana, G. B. Savitsky, and D. F. Hornig—2942

Infrared spectra of HF–DF mixed crystals and the structure of hydrogen fluoride, M. L. N. Sastri and D. F. Hornig—3497

Hornung, E. W.

Correlation of magnetothermodynamic data with a theoretical model. Powdered $CoCO_4 \cdot 7H_2O$ over the range 0 to 100 kG above 1.2°K, R. A. Fisher and E. W. Hornung—939

Hougen, Jon T.

Classification of rotational energy levels. II, Jon T. Hougen—358

Howard, A. J.

Isotopic thermal-diffusion factor of argon, R. Paul, A. J. Howard, and W. W. Watson—3053

Howard, Bentz B.

Electrostatic contribution to the energy of the hydrogen bond in hydrogen fluoride dimer. I. Utilizing approximate evaluation of multicenter integrals, Bentz B. Howard—2524

Howe, John A.

Observations on the maser-induced graphite jet, John A. Howe—1362(L)

Hoyland, James R.

Open-shell SCF triplet-state energies of polyacenes, Lionel Goodman and James R. Hoyland—1068

Hsiung, Chi-hua

Interpretation of hot-atom data, Chi-hua Hsiung and Adon A. Gordus—2770(L)

Hsueh, Y. W.

Thermoelectric power of CuCl containlng $CdCl_2$, Y. W. Hsueh and R. W. Christy—3519

Hubbard, Paul S.

Nuclear magnetic relaxation and diffusion in liquid CH_4, CF_4, and mixtures of CH_4 and CF_4 with argon, John H. Rugheimer and Paul S. Hubbard—552

Nuclear magnetic relaxation and diffusion in liquid SF_6, William R. Hackleman and Paul S. Hubbard—2688

Hudson, John B.

Mobility of silver crystallites on surfaces of MoS_2 and graphite, Gerald W. Sears and John B. Hudson—2380(L)

Huff, Norman T.

Use of rescaled eignfunctions as variational wavefunctions in calculations on atoms and ions, Frank O. Ellison and Norman T. Huff—2051

Huffman, R. E.

Absorption coefficients of xenon and argon In the 600–1025 Å wavelength regions, R. E. Huffman, Y. Tanaka, and J. C. Larrabee—902

Absorption coefficients of nitrogen in the 1000–580 Å wavelength region, R. E. Huffman, Y. Tanaka, and J. C. Larrabee—910

Hughes, W. E.
Electron spin resonance of irradiated KH_2PO_4 and KD_2PO_4, W. E. Hughes and W. G. Moulton—1359(L)
Hurst, G. S.
Time-of-flight investigations of electron transport in gases, G. S. Hurst, L. B. O'Kelly, E. B. Wagner, and J. A. Stockdale—1341

Ibers, James A.
Nature of the hydrogen bond in sodium acid fluoride, Barbara L. McGaw and James A. Ibers—2677
Ikenberry, Lynn D.
On the kinetic theory of dense fluids. XIV. Experimental and theoretical studies of thermal conductivity in liquid Ar, Ke, Xe, and CH_4, Lynn D. Ikenberry and Stuart A. Rice—1561
Inokuti, Mitio
Conditions for first- or second-order kinetics during multiple zone reactions, Malcolm Dole and Mitio Inokuti—310
Erratum: Gel formation in polymers resulting from simultaneous crosslinking scission, Mitio Inokuti [**38,** 2999 (1953)]—2376(L)
Irish, D. E.
Raman study of zinc chloride solutions, D. E. Irish, Bruce McCarroll, and T. F. Young—3436
Ise, Norio
Second virial coefficient of polyelectrolytes. III, Norio Ise and Paul Ander—592
Itzel, John F., Jr.
Optical reflection spectra of chromia–alumina, Charles P. Poole, Jr., and John F. Itzel, Jr.—3445

Jache, Albert W.
Microwave spectrum and structure of pentafluorosulfur bromide, Erwin W. Neuvar and Albert W. Jache—596
Jackson, J. E.
Erratum: Mean lives of positrons in aqueous solutions, J. E. Jackson and J. D. McGervey [**38,** 300 (1963)]—487(L)
Jackson, Julius L.
Potential and effective diffusion constant in a polyelectrolyte solution, Sam R. Coriell and Julius L. Jackson—2418
Jacobs, P. W. M.
Polarization effects in the ionic conductivity of alkali halide crystals. I. AC capacity, P. W. M. Jacobs and J. N. Maycock—757
Jacobs, T. A.
Dissociation of Cl_2 in shock waves, T. A. Jacobs and R. R. Giedt—749
Jacox, Marilyn E.
Infrared spectroscopic evidence for the species HNC, Dolphus E. Milligan and Marilyn E. Jacox—712
Jaffe, J. H.
Pressure-induced shifts of molecular lines in emission and in absorption, J. H. Jaffe, H. Friedmann, M. A. Hirshfeld, and A. Ben-Reuven—1447
Jain, R. K.
Continuum distribution for anionic polymers, V. S. Nanda, and R. K. Jain—1363(L)

Janninck, R. F.
Thermoelectric power in nonstoichiometric α-Nb_2O_5, R. F. Janninck and D. H. Whitmore—179
Janz, George J.
Vibrational spectra of molten mercuric halides. III. Mercuric chloride–thallous nitrate mixtures, George J. Janz and Theodore R. Kozlowski—843(L)
Raman spectrum and vibrational assignment for molten thallous nitrate, G. J. Janz, T. R. Kozlowski, and S. C. Wait—1809
Jarnagin, R. C.
Physical and chemical effects at the anthracene–electrolyte interface due to photoelectrolysis, R. C. Jarnagin, J. Gilliland, Jr., J. S. Kim, and M. Silver—573
Relative contributions of singlet–singlet and singlet–triplet interactions to the photogeneration of carriers of anthracene, M. Silver, S. Z. Weisz, J. S. Kim, and R. C. Jarnagin—3163(L)
Jeffrey, G. A.
Polyhedral clathrate hydrates. V. Structure of the tetra-*n*-butylammonium fluoride hydrate, R. K. McMullan, M. Bonamico, and G. A. Jeffrey—3295
Polyhedral clathrate hydrates. VI. Lattice type and ion distribution in some new peralkyl ammonium, phosphonium, and sulfonium salt hydrates, Gezina Beurskens, G. A. Jeffrey, and R. K. McMullan—3311
Jefimenko, Oleg
Absorption spectrum of Cs in the presence of isomeric hydrocarbons, Oleg Jefimenko and Reginald J. Exton—229
Satellite bands in the spectra of gaseous mixtures and the shape of potential curves for neutral atoms and molecules in the state of collision, Oleg Jefimenko—2457
Jenney, Joe A.
Absorption and emission spectrum of $CaF_2:U^{3+}$ from 2.1 to 2.5 microns, Robert E. Meredith and Joe A. Jenney—3127
Jepsen, D. W.
Evaporation mechanism and vapor composition, D. W. Jepsen and G. A. Somorjai—1665
Jepson, W. B.
Distribution of space charge in homogeneous metal oxide films, W. B. Jepson—2377(L)
Johnson, Charles S., Jr.
High-resolution ESR spectra of photochemically generated free radicals: the viologens, C. S. Johnson, Jr., and H. S. Gutowsky—58
Nuclear transverse relaxation in electron-transfer reactions, Charles S. Johnson, Jr.—2111
Johnson, Philip M.
Second moments of electron spin resonance proton hyperfine spectra, Gershon Vincow and Philip M. Johnson—1143
Johnston, David R.
Absorption and fluorescence spectra of several praseodymium-doped crystals and the change of covalence in the chemical bonds of the praseodymium ion, Eugene Y. Wong, Oscar M. Stafsudd, and David R. Johnston—786
Jones, G. W.
Destruction of acetylene in flames with oxygen, C. P. Fenimore and G. W. Jones—1514

Jones, Joseph S.
Elastic constants of ammonium chloride near the lambda point, Carl W. Garland and Joseph S. Jones—2874
Jordan, C. B.
Metastable simple cubic structure in the indium–antimony system, C. B. Jordan—1613(L)
Jørgensen, Chr. Klixbüll
Do the "ligand field" parameters in lanthanides represent weak covalent bonding? Chr. Klixbüll Jørgensen, Romano Pappalardo, and Hans-Herbert Schmidtke—1422
Jortner, Joshua
On the excess electron and hole band structures and carrier mobility in naphthalene, anthracene, and several polyphenyls, Joseph L. Katz, Stuart A. Rice, Sang-il Choi, and Joshua Jortner—1683
Triplet exciton bands in aromatic crystals, Joseph L. Katz, Joshua Jortner, Sang-il Choi, and Stuart A. Rice—1897(L)
Josey, A. D.
Proton spin–spin coupling constants from the NMR spectra of paramagnetic molecules, D. R. Eaton, A. D. Josey, W. D. Phillips, and R. E. Benson—3513
Joshi, S. K.
Model for the lattice dynamics of metals and its application to sodium, P. K. Sharma and S. K. Joshi—2633

Kahalas, S. L.
Electron structure of LiH and quadrupole moment of Li^7, S. L. Kahalas and R. K. Nesbet—529
Kaiser, E. T.
Electron spin resonance study of the anion radicals of *cis*- and *trans*-thianthrene-5,10-dioxide, E. T. Kaiser and D. H. Eargle, Jr.—1353(L)
Kaiser, Reinhold
Use of the nuclear Overhauser effect in the analysis of high-resolution nuclear magnetic resonance spectra, Reinhold Kaiser—2435
Kalff, P. J.
Ionization rate constants of alkali metals in CO flames, Tj. Hollander, P. J. Kalff, and C. T. J. Alkemade—2558
Kandel, Richard J.
Methane–tritium system. I. Mass spectra of tritium-substituted methanes, Richard J. Kandel—2581
Kane, R. A.
Vibrational energy distribution of molecular oxygen produced by the reaction of atomic oxygen with NO_2, R. A. Kane, J. J. McGarvey, and W. D. McGrath—840(L)
Kaplan, Morton
Electron transfer in dilute gold alloys, P. H. Barrett, R. W. Grant, Morton Kaplan, D. A. Keller, and D. A. Shirley—1035
Karplus, Martin
Ion radicals of methyl-substituted benzenes: temperature dependence of spin and charge densities, Thomas H. Brown and Martin Karplus—1115
Variation-perturbation approach to the interaction of radiation with atoms and molecules, M. Karplus and H. J. Kolker—1493
Chemical shifts in xenon fluorides, D. Lazdins, C. W. Kern, and M. Karplus—1611(L)
Electric polarizability of some diatomic molecules, H. J. Kolker and M. Karplus—2011
Time-dependent variation-perturbation method for many-electron systems, M. Karplus and H. J. Kolker—2997
Kasha, Michael
Red chemiluminescence of molecular oxygen in aqueous solution, Ahsan Ullah Khan and Michael Kasha—2105(L)
Kashiwagi, Michio
Torsional oscillation of methylene groups in free radicals studied by ESR, Michio Kashiwagi and Yukio Kurita—3165(L)
Kato, Shunji
Internal conversion from upper electronic states to the first excited singlet state of benzene, toluene, *p*-xylene, and mesitylene, Charles L. Braun, Shunji Kato, and Sanford Lipsky—1645
Katsura, Shigetoshi
Irreducible cluster integrals of hard-sphere gases, Shigetoshi Katsura and Yutaka Abe—2068
Katz, Joseph L.
On the excess electron and hole band structures and carrier mobility in naphthalene, anthracene, and several polyphenyls, Joseph L. Katz, Stuart A. Rice, Sang-il Choi, and Joshua Jortner—1683
Triplet exciton bands in aromatic crystals, Joseph L. Katz, Joshua Jortner, Sang-il Choi, and Stuart A. Rice—1897(L)
Katz, Sidney
Emission spectrum and thermodynamic properties of gallium monoxide, Victor Raziunas, George J. Macur, and Sidney Katz—1161
Kaufman, F.
Experimental oscillator strength of OH, $^2\Sigma^+ \rightarrow {}^2\pi$, by a chemical method, D. M. Golden, F. P. Del Greco, and F. Kaufman—3034
Kaufman, M.
Erratum: Electric resonance spectrum and dipole moment of BaO, L. Wharton, M. Kaufman, and W. Klemperer [**37**, 622 (1962)]—240(L)
Kayama, Kunifusa
HFS constants of OH ground state, Kunifusa Kayama—1507
Kearns, David R.
Generation of charge carriers in organic molecular crystals through multiple exciton interactions, David R. Kearns—2697
Kebarle, P.
Mass-spectrometric study of ions from the α-particle irradiation of gases at near atmospheric pressures, P. Kebarle and E. W. Godbole—1131(L)
Primary reactions in the mercury photosensitized decomposition of 1-butyne, propyne, and acetylene at low pressures, P. Kebarle—2218
Keller, D. A.
Electron transfer in dilute gold alloys, P. H. Barrett, R. W. Grant, Morton Kaplan, D. A. Keller, and D. A. Shirley—1035
Keller, H.
Exciton magnetic resonance in Wurster's blue perchlorate, D. D. Thomas, H. Keller, and H. M. McConnell—2321
Keller, Richard A.
Radiationless triplet–singlet transitions in naphthalene, Steven G. Hadley, Howard E. Rast, Jr., and Richard A. Keller—705

Kepler, R. G.
Indirect observation of singlet–triplet absorptoin in anthracene crystals, P. Avakian, E. Abramson, R. G. Kepler, and J. C. Caris—1127(L)
Electronic properties of a new class of highly conductive organic solids, W. J. Siemons, P. E. Bierstedt, and R. G. Kepler—3523
Magnetic properties of a new class of highly conductive organic solids, R. G. Kepler—3528
Kern, C. W.
Chemical shifts in xenon fluorides, D. Lazdins, C. W. Kern, and M. Karplus—1611(L)
Kerr, Eugene C.
Vapor–liquid equilibria of dilute solutions of HT in e-H_2 and DT in e-D_2 from the triple points to the critical temperatures of the solutions, Jacob Bigeleisen and Eugene C. Kerr—763
Kestner, Neil R.
Obtaining Hartree–Fock orbitals from a many-electron trial wavefunction, Neil R. Kestner—1361(L)
Kevan, Larry
Chemistry of positive ions. III. The radiation chemistry of solid n-hexane at 77°K, Larry Kevan and W. F. Libby—1288
Kewley, Roger
Millimeter wave spectroscopy of unstable molecular species. I. Carbon monosulfide, Roger Kewley, K. V. L. N. Sastry, Manfred Winnewisser, and Walter Gordy—2856
Khan, Ahsan Ullah
Red chemiluminescence of molecular oxygen in aqueous solution, Ahsan Ullah Khan and Michael Kasha—2105(L)
Kikuchi, Kiyoaki
Benzene photosensitized *cis-trans* isomerization of butene-2, Shin Sato, Kiyoaki Kikuchi, and Masahiro Tanaka—239(L)
Kim, J. S.
Physical and chemical effects at the anthracene–electrolyte interface due to photoelectrolysis, R. C. Jarnagin, J. Gilliland, Jr., J. S. Kim, and M. Silver—573
Relative contributions of singlet–singlet and singlet–triplet interactions to the photogeneration of carriers of anthracene, M. Silver, S. Z. Weisz, J. S. Kim, and R. C. Jarnagin—3163(L)
Kimura, K.
On the density–intensity calibration in electron diffraction studies, K. Kimura and S. H. Bauer—3171
Electron diffraction study of the molecular structures of sulfur tetrafluoride (SF_4) and thionyl tetrafluoride (SOF_4), K. Kimura and S. H. Bauer—3172
King, A. D., Jr.
Relationship between spectral shifts and solubility for naphthalene in compressed nonpolar gases, A. D. King, Jr., and W. W. Robertson—3071
King, G. J.
Crystal structure change of sodium azide at 19°C, B. S. Miller and G. J. King—2779(L)
King, W. T.
Erratum: Infrared intensities of silane, Ira W. Levin and W. T. King [**37**, 1375 (1962)]—241(L)
Electric moments and molecular orbitals for methane, W. T. King—2141
Kinzig, B. J.
Entanglement effects in concentrated polymer solutions from viscosity measurements, F. Bueche, C. J. Coven, and B. J. Kinzig—128
Kiss, Zoltan
Survey of the spectra of the divalent rare-earth ions in cubic crystals, Donald S. McClure and Zoltan Kiss—3251
Klein, Max
Numerical solutions of the convolution-hypernetted chain integral equation for the pair correlation function of a fluid. I. The Lennard–Jones (12, 6) potential, Max Klein and M. S. Green—1367
Numerical solutions of the convolution-hypernetted chain integral equation for the pair correlation function of a fluid. II. The hard-sphere potential, Max Klein—1388
Klemperer, William
Erratum: Electric resonance spectrum and dipole moment of BaO, L. Wharton, M. Kaufman, and W. Klemperer [**37**, 622 (1962)]—240(L)
Far-infrared spectrum and barrier to internal rotation of ethyl fluoride, Gloria Sage and William Klemperer—371
Rotational dependency of the Stark effect of a polar diatomic molecule, L. Wharton and W. Klemperer—1881
Geometry of the alkaline-earth dihalides, L. Wharton, R. A. Berg, and W. Klemperer—2023
Determination of the geometry of lithium oxide, $Li_2O(g)$, by electric deflection, Alfred Büchler, James L. Stauffer, William Klemperer, and Lennard Wharton—2299
Klots, Cornelius E.
Interpretation of ion yields in binary mixtures, Cornelius E. Klots—1571
Knox, K.
Crystal-field spectra of d^3, d^7 ions. II. $KCoF_3$, $CoCl_2$, $CoBr_2$, and $DoWO_4$, J. Ferguson, D. L. Wood, and K. Knox—881
Crystal-field spectra of $d^{3,7}$ ions. III. Spectrum of Cr^{3+} in various octahedral crystal fields, D. L. Wood, J. Ferguson, K. Knox, and J. F. Dillon, Jr.—890
Kohl, D. A.
Modification to the Newton–Raphson method for the fitting of nonlinear functions by least squares, T. G. Strand, D. A. Kohl, and R. A. Bonham—1307
Structure and rotational isomerization of free hydrocarbon chains, L. S. Bartell and D. A. Kohl—3097
Kohlmaier, G. H.
Collisional transition probabilities for vibrational deactivation of chemically activated *sec*-butyl radicals. Different initial vibrational energy levels, G. H. Kohlmaier and B. S. Rabinovitch—490(L)
Kolker, H. J.
Variation-perturbation approach to the interaction of radiation with atoms and molecules, M. Karplus and H. J. Kolker—1493
Electric polarizability of some diatomic molecules, H. J. Kolker and M. Karplus—2011
Time-dependent variation-perturbation method for many-electron systems, M. Karplus and H. J. Kolker—2997
Kopchik, R. M.
Proton NMR studies of CHDO and CH_2O, B. L. Shapiro, R. M. Kopchik, and S. J. Ebersole—3154(L)

Koski, W. S.
Cross sections for some gas-phase single-charge-transfer reactions of N_2^{++} and Ar^{++}, E. R. Weiner, G. R. Hertel, and W. S. Koski—3538(L)

Kottis, Philémon
Calculation of the electron spin resonance line shape of randomly oriented molecules in a triplet state. I. The Δm-2 transition with a constant linewidth, Philémon Kottis and Roland Lefebvre—393

Kozlowski, Theodore R.
Vibrational spectra of molten mercuric halides. III. Mercuric chloride–thallous nitrate mixtures, George J. Janz and Theodore R. Kozlowski—843(L)
Raman spectrum and vibrational assignment for molten thallous nitrate, G. J. Janz, T. R. Kozlowski, and S. C. Wait—1809

Kratochvil, Byron
Dispersion in ethanol and methanol at 2.1-mm wavelength, Worth E. Vaughan and Byron Kratochvil—1617(L)

Krause, Brigitte H.
Diffraction studies of photochemical decomposition of azides. I. X-ray and uv-induced lattice constant changes in TlN_3, Brigitte H. Krause—1706

Kresge, A. J.
Proton NMR chemical shifts of hydronium and hydroxyl ions, A. J. Kresge—1360(L)

Kretschmer, C. B.
Kinetics of three-body atom recombination, C. B. Kretschmer and H. L. Petersen—1772

Kristiansen, L. A.
Vector methods in the theory of molecular vibrations, B. N. Cyvin, S. J. Cyvin, and L. A. Kristiansen—1967

Kropp, John L.
Enhancement of fluorescence yield of rare-earth ions by heavy water, John L. Kropp and Maurice W. Windsor—2769(L)

Krupenie, Paul H.
Interaction energies and transport coefficients of Li+H and O+H gas mixtures at high temperatures, Paul H. Krupenie, Edward A. Mason, and Joseph T. Vanderslice—2399

Krupke, William F.
Absorption and fluorescence spectra of $Er^{3+}(4f^{11})$ in LaF_3, William F. Krupke and John B. Gruber—1024

Kubota, Yoshio
Magnetic characteristics of dysprosium, erbium, and thulium hydrides, Yoshio Kubota and W. E. Wallace—1285

Kuczkowski, Robert L.
Microwave spectrum, structure, and dipole moment of "*cis*"-N_2F_2, Robert L. Kuczkowski and E. Bright Wilson, Jr.—1030

Kuebler, N. A.
Vaporization of tungsten studied by flash heating and kinetic spectroscopy. I. Near-ultraviolet region, L. S. Nelson and N. A. Kuebler—1055

Kuppermann, Aron
Differences between low-energy electron-impact spectra at 0° and at large scattering angle, Aron Kuppermann and Lionel M. Raff—1607(L)

Kurita, Yukio
Torsional oscillation of methylene groups in free radicals studied by ESR, Michio Kashiwagi and Yukio Kurita—3165(L)

Kuroda, H.
Photoconduction in charge-transfer complexes, H. Akamatu and H. Kuroda—3364

Labes, M. M.
Trap density and depth in *p*-chloranil crystals, P. J. Reucroft, O. N. Rudyj, and M. M. Labes—1136(L)

Labhart, H.
On the evaluation of some dipole velocity integrals, G. Wagnière and H. Labhart—2386(L)

LaMacchia, J. T.
Distribution of dielectric relaxation times in glycerol– and butanediol 1,3–*n*-propanol mixtures, G. E. McDuffie, Jr., J. T. LaMacchia, and A. E. Conord—1878

Langenbucher, F.
Chemical shifts of the *meta* protons of some 2,4,6-trideuterated monoderivatives of benzene, F. Langenbucher, E. D. Schmid, and R. Mecke—1901(L)

Larrabee, J. C.
Absorption coefficients of xenon and argon in the 600–1025 Å wavelength regions, R. E. Huffman, Y. Tanaka, and J. C. Larrabee—902
Absorption coefficients of nitrogen in the 1000–580 Å wavelength region, R. E. Huffman, Y. Tanaka, and J. C. Larrabee—910

Laurie, Victor W.
Microwave spectrum, structure, and dipole moment of silyl acetylene, John S. Muenter and Victor W. Laurie—1181
Structure of isobutylene, LeRoy H. Scharpen and Victor W. Laurie—1732

Laws, Kenneth L.
PbO solid electrolyte voltaic cell, Kenneth L. Laws—1924

Lazare, Leon
Reaction kinetics of a long chain molecule, Leon Lazare—727

Lazdins, D.
Chemical shifts in xenon fluorides, D. Lazdins, C. W. Kern, and M. Karplus—1611(L)

LeBlanc, Oliver H., Jr.
Band theory and the Hall effect in organic crystals, Oliver H. LeBlanc, Jr.—2395(L)

Lee, Sook
Electron-spin resonance studies of irradiated glasses containing boron, Sook Lee and P. J. Bray—2863

Lefebvre, Roland
Calculation of the electron spin resonance line shape of randomly oriented molecules in a triplet state. I. The Δm-2 transition with a constant linewidth, Philémon Kottis and Roland Lefebvre—393

Legvold, Sam
Sound dispersion in substituted methane–inert gas mixtures, J. R. Olson and Sam Legvold—2902

Leies, Gerard M.
Vibrational energy levels for an SCF wavefunction of the hydrogen molecule, Gerard M. Leies—1137(L)

Lempicki, A.
Fluorescence and lifetimes of Eu chelates, H. Samelson and A. Lempicki—110
Levin, Ira W.
Erratum: Infrared intensities of silane, Ira W. Levin and W. T. King [**37**, 1375 (1962)—241(L)
Levinson, L. S.
High-temperature heat content of niobium carbide and of tantalum carbide, L. S. Levinson—1550
Levy, A.
Transpiration study of magnesium oxide, C. A. Alexander, J. S. Ogden, and A. Levy—3057
Lewin, Ruth
Molecular and crystal structure of $C_2H_8NH_2B_9H_{11}NHC_2H_5$, Ruth Lewin, Paul G. Simpson, and William N. Lipscomb—1532
Lias, S. G.
Effect of additives on the ionic reaction mechanism in the radiolysis of methane, P. Ausloos, S. G. Lias, and R. Gorden, Jr.—3341
Libby, W. F.
Chemistry of positive ions. III. The radiation chemistry of solid *n*-hexane at 77°K, Larry Kevan and W. F. Libby—1288
Lide, David R., Jr.
Quadrupole coupling constants from the microwave spectrum of hydrazoic acid, Richard A. Forman and David R. Lide, Jr.—1133(L)
Lienard, G.
On the kinetics of chemisorption, R. Coekelbergs, A. Frennet, G. Lienard, and P. Resibois—585
Lifshitz, Assa
Studies with a single-pulse shock tube. II. The thermal decomposition of perfluorocyclobutane, Assa Lifshitz, H. F. Carroll, and S. H. Bauer—1661
Lim, E. C.
Delayed fluorescence and possible one-electron photoionization of dyes in rigid media, E. C. Lim and Wen-Yang Wen—847(L)
One-electron photo-ionization of acridine dyes in rigid media: evidence for the formation of transient radical ion, E. C. Lim and G. W. Swenson—2768(L)
Lin, S. H.
Improved calculation of quasiequilibrium reaction rate constants, S. H. Lin and Henry Eyring—1577
Lin, W. C.
Molecular orbital calculations of spin densities in the diketopiperazyl radical, W. C. Lin and C. A. McDowell—848(L)
Linevsky, M. J.
Infrared spectra, and the structures and thermodynamics of gaseous LiO, Li_2O, and Li_2O_2, David White, K. S. Seshadri, D. F. Dever, D. E. Mann, and M. J. Linevsky—2463
Lippincott, Ellis R.
Calculations of higher-order spectroscopic parameters using empirical potential functions, Joel M. Stutman, Ellis R. Lippincott, and Derek Steele—564
Lipscomb, William N.
Molecular, crystal, and valence structures of $B_{18}H_{22}$, Paul G. Simpson and William N. Lipscomb—26
Molecular and crystal structure of $C_2H_8NH_2B_9H_{11}NHC_2H_5$, Ruth Lewin, Paul G. Simpson, and William N. Lipscomb—1532
Calculation of the barrier to internal rotation in ethane, Russell M. Pitzer and William N. Lipscomb—1995
Molecular, crystal, and valence structures of Iso-$B_{18}H_{22}$, Paul G. Simpson, Kirsten Folting, Robert D. Dobrott, and William N. Lipscomb—2339
Lipsky, Sanford
Internal conversion from upper electronic states to the first excited singlet state of benzene, toluene, *p*-xylene, and mesitylene, Charles L. Braun, Shunji Kato, and Sanford Lipsky—1645
Litovitz, Theodore A.
Comparison of dielectric and mechanical relaxation in associated liquids, T. A. Litovitz and G. E. McDuffie, Jr.—729
Effect of pressure and temperature on rotational isomeric relaxation in ethyl acetate, Warren M. Slie and Theodore A. Litovitz—1538
Livingston, Robert
Viscosity dependence of the first-order decay of the triplet state of anthracene and related molecules, Robert Livingston and William R. Ware—2593
Lohr, L. L., Jr.
Erratum: Wavefunctions and correlation energies for F, F^-, and Ne, L. L. Lohr, Jr., and Leland C. Allen [**34**, 1156 (1961)]—2106(L)
Long, F. A.
Rearrangement processes for forming oxonium ions from aliphatic ester ions, R. R. Bernecker and F. A. Long—253(L)
Lord, R. C.
Normal vibrations, potential constants, and vibration–rotation interaction constants in cyclobutane and cyclobutane-d_8, R. C. Lord and I. Nakagawa—2951
Love, Peter
Pure quadrupole resonance spectra of trialkylboranes, Peter Love—3044
Loy, B. R.
ESR of the N_2F_4–NF_2 equilibrium, H. E. Doorenbos and B. R. Loy—2393(L)
Luz, Z.
Nuclear magnetic resonance study of the protoysis of trimethylammonium ion in aqueous solution—order of the reaction with respect to solvent, Z. Luz and S. Meiboom—366

MacDiarmid, Alan G.
Electric dipole moment of trisilylamine, Ravi Varma, Alan G. MacDiarmid, and John G. Miller—3157(L)
Macdonald, J. Ross
Work function change on monolayer adsorption, J. Ross Macdonald and C. A. Barlow, Jr.—412
Macfarlane, R. M.
Analysis of the spectrum of d^3 ions in trigonal crystal fields, R. M. Macfarlane—3118
Machacek, Milos
Isotope shifts in the 2^1P and 2^3P states of He and Li^+ systems, Milos Machacek and Charles W. Scherr—3151(L)

Mackenzie, J. D.
Melting of gallium and bismuth, J. D. Mackenzie and R. L. Cormia—250(L)
Mackey, John H., Jr.
EPR study of impurity-related color centers in germanium-doped quartz, John H. Mackey, Jr.—74
Macur, George J.
Emission spectrum and thermodynamic properties of gallium monoxide, Victor Raziunas, George J. Macur, and Sidney Katz—1161
Madigosky, Walter M.
Vibrational relaxation in high-density methane, Walter M. Madigosky—2704
Maeda, S.
Absolute infrared intensity measurements in thin films. II. Solids deposited on halide plates, S. Maeda, G. Thyagarajan, and P. N. Schatz—3474
Magat, M.
Comment on "Dispersion at millimeter wavelengths in methyl and ethyl alcohols," C. Brot and M. Magat—841(L)
Magee, Ellington M.
Photolysis of methane by vacuum-ultraviolet light, Ellington M. Magee—855
Magnusson, L. B.
Short-range interactions of aqueous ions, L. B. Magnusson—1953
Mahon-Smith, D.
Isotopic shifts in some ultraviolet systems of N_2, P. K. Carroll and D. Mahon-Smith—237(L)
Maier, William B., II
Dissociative ionization of CO by ion impact, Clayton F. Giese and William B. Maier, II—197
Energy dependence of cross sections for ion–molecule reactions. Transfer of hydrogen atoms and hydrogen ions, Clayton F. Giese and William B. Maier, II—739
Maisch, William G.
Spectroscopic study of the effect of high pressures on organic charge-transfer complexes in solution, J. Robert Gott and William G. Maisch—2229
Maki, August H.
Intramolecular electron transfer in bis(*p*-nitrophenyl) anions and its effect on electron spin resonance hyperfine structure, John E. Harriman and August H. Maki—778
ESR study of polyazine anions, Ellery W. Stone and August H. Maki—1635
Paramagnetic resonance measurements of the phosphorescent state of quinoxaline, James S. Vincent and August H. Maki—3088
Malinowska, C.
Note concerning the elastic scattering of low-energy electrons in Thomas–Fermi theory, T. Tietz and C. Malinowska—2778(L)
Manes, Milton
On diagonalizing phenomenological matrices, Milton Manes—456
Mann, D. E.
Infrared spectra, and the structures and thermodynamics of gaseous LiO, Li_2O, and Li_2O_2, David White, K. S. Seshadri, D. F. Dever, D. E. Mann, and M. J. Linevsky—2463
Manson, J. A.
Polymer NMR spectroscopy. X. The use of H^1–H^1 spin decoupling in the elucidation of polymer structure, F. A. Bovey, E. W. Anderson, D. C. Douglass, and J. A. Manson—1199
Marcus, R. A.
Interactions in polar media. II. Continua, R. A. Marcus—460
Photochemical studies in flash photolysis. III. Photolysis of acetone in different wavelength regions, A. Shilman and R. A. Marcus—996
Free energy of nonequilibrium polarization systems. III. Statistical mechanics of homogeneous and electrode systems, R. A. Marcus—1734
Margulis, T. N.
Comments on the orientation of the proton–proton vectors of water in Tutton's salts, David H. Templeton, Allan Zalkin, and T. N. Margulis—3155(L)
Maričič, S.
Anisotropy of the fluorine chemical shift tensor in xenon tetrafluoride, R. Blinc, I. Zupančič, S. Maričič, and Z. Veksli—2109(L)
Marquart, J. R.
Equilibrium composition of sulfur vapor, J. Berkowitz and J. R. Marquart—275
Dissociation energies of some metal sulfides, J. R. Marquart and J. Berkowitz—283
Marram, Edward P.
Gaseous metaborates. II. Infrared spectra of alkali metaborate vapors, Alfred Büchler and Edward P. Marram—292
Marsh, O. J.
Fluorescence of europium thenoyltrifluoroacetonate. I. Evaluation of laser threshold parameters, H. Winston, O. J. Marsh, C. K. Suzuki, and C. L. Telk—267
Fluorescence of europium thenoyltrifluoroacetonate. II. Determination of absolute quantum efficiency, R. A. Gudmundsen, O. J. Marsh, and E. Matovich—272
Marte, J. E.
Reaction between nitric oxide and ozone in a supersonic nozzle, J. E. Marte, E. Tschuikow-Roux, and H. W. Ford—3277
Martin, J. B.
Calculations of the hyperfine splitting for the lithium atom, J. B. Martin and A. W. Weiss—1618(L)
Martin, John S.
Proton chemical shifts in polysubstituted benzenes, John S. Martin and B. P. Dailey—1722
Molecular orbital study of nonadditive substituent effects, John S. Martin—1728
Mason, Edward A.
Molecular relaxation times from thermal transpiration measurements, E. A. Mason—522
Formal kinetic theory of transport phenomena in polyatomic gas mixtures, L. Monchick, K. S. Yun, and E. A. Mason—654
Interaction energies and transport coefficients of Li+H and O+H gas mixtures at high temperatures, Paul H. Krupenie, Edward A. Mason, and Joseph T. Vanderslice—2399

Matovich, E.
Fluorescence of europium thenoyltrifluoroacetonate. II. Determination of absolute quantum efficiency, R. A. Gudmundsen, O. J. Marsh, and E. Matovich—272
Observation of fluorescence in ketone solutions of europium and terbium salts, E. Matovich and C. K. Suzuki—1442
Maycock, J. N.
Polarization effects in the ionic conductivity of alkali halide crystals. I. AC capacity, P. W. M. Jacobs and J. N. Maycock—757
Mayo, Ralph E.
Computation of unique NMR parameters for ABC systems with the aid of C^{13}–H satellite spectra, R. T. Hobgood, Jr., Ralph E. Mayo, and J. H. Goldstein—2501
Mazo, Robert M.
Free energy of a system with random elements, Robert M. Mazo—1224
Antiferromagnetic spherical Ising model and some properties of the associated lattice gas, Robert M. Mazo—2196
McCarroll, Bruce
Trapping and energy transfer in atomic collisions with a crystal surface. II. Impurities, Bruce McCarroll—1317
Raman study of zinc chloride solutions, D. E. Irish, Bruce McCarroll, and T. F. Young—3436
McClure, Donald S.
Optical spectra of exchange coupled Mn^{++} ion pairs in ZnS:MnS, Donald S. McClure—2850
Survey of the spectra of the divalent rare-earth ions in cubic crystals, Donald S. McClure and Zoltan Kiss—3251
McConnell, Harden M.
Quantum states of a triplet exciton gas, Harden M. McConnell and Charles G. Montgomery—252(L)
Ferromagnetism in solid free radicals, Harden M. McConnell—1910(L)
Exciton magnetic resonance in Wurster's blue perchlorate, D. D. Thomas, H. Keller, and H. M. McConnell—2321
McDonald, C. C.
EPR spectra of SH, SD, and SO radicals in the gaseous state, C. C. McDonald—2587
Multiple-quantum transitions in EPR spectra of atomic oxygen, C. C. McDonald—3159(L)
McDowell, C. A.
Molecular orbital calculations of spin densities in the diketopiperazyl radical, W. C. Lin and C. A. McDowell—848(L)
Nuclear magnetic resonance and molecular motion in the benzene–silver perchlorate complex, D. F. R. Gilson and C. A. McDowell—1825
McDowell, Robin S.
Centrifugal distortion corrections to calculated thermodynamic functions, Robin S. McDowell—526
McDuffie, G. E., Jr.
Comparison of dielectric and mechanical relaxation in associated liquids, T. A. Litovitz and G. E. McDuffie, Jr.—729
Distribution of dielectric relaxation times in glycerol– and butanediol 1,3–*n*-propanol mixtures, G. E. McDuffie, Jr., J. T. LaMacchia, and A. E. Conord—1878
McGarvey, J. J.
Vibrational energy distribution of molecular oxygen produced by the reaction of atomic oxygen with NO_2, R. A. Kane, J. J. McGarvey, and W. D. McGrath—840(L)
McGaw, Barbara L.
Nature of the hydrogen bond in sodium acid fluoride, Barbara L. McGaw and James A. Ibers—2677
McGervey, J. D.
Erratum: Mean lives of positrons in aqueous solutions, J. E. Jackson and J. D. McGervey [**38,** 300 (1963)]—487(L)
McGlynn, Seán P.
External heavy-atom spin–orbital coupling effect. IV. Intersystem crossing, S. P. McGlynn, J. Daigre, and F. J. Smith—675
Delayed fluorescence of solid solutions of polyacenes. II. Kinetic considerations, Tohru Azumi and Seán P. McGlynn—1186
Delayed fluorescence of solid solutions of polyacenes. IV. The origin of excimer fluorescence, Tohru Azumi and Seán P. McGlynn—3533(L)
McGrath, J. W.
Motion of the H_2O molecule in barium chlorate monohydrate, J. W. McGrath and A. A. Silvidi—3017
McGrath, W. D.
Vibrational energy distribution of molecular oxygen produced by the reaction of atomic oxygen with NO_2, R. A. Kane, J. J. McGarvey, and W. D. McGrath—840(L)
McLean, A. D.
Self-consistent-field wavefunctions for the N_3^- and NO_2^+ molecules, Enrico Clementi and A. D. McLean—323
Optimized single-configuration wavefunction for the ground state of lithium fluoride, A. D. McLean—2653
McMullan, R. K.
Polyhedral clathrate hydrates. V. Structure of the tetra-*n*-butylammonium fluoride hydrate, R. K. McMullan, M. Bonamico, and G. A. Jeffrey—3295
Polyhedral clathrate hydrates. VI. Lattice type and ion distribution in some new peralkyl ammonium, phosphonium, and sulfonium salt hydrates, Gezina Beurskens, G. A. Jeffrey, and R. K. McMullan—3311
McRae, E. G.
Vibronic interactions in the exciton theory for molecular crystals, E. G. McRae—2974
Meath, William J.
Nonuniform scaling of an approximate H_2^+ wavefunction, William J. Meath and Joseph O. Hirschfelder—1135(L); 3534(E)
Truncated reaction operators, William J. Meath, Kenneth M. Sando, S. Osvaldo Goscinski, and Joseph O. Hirschfelder—2429
Mecke, R.
Chemical shifts of the *meta* protons of some 2,4,6-trideuterated monoderivatives of benzene, F. Langenbucher, E. D. Schmid, and R. Mecke—1901(L)
Meiboom, S.
Nuclear magnetic resonance study of the protolysis of trimethylammonium ion in aqueous solution—order of the reaction with respect to solvent, Z. Luz and S. Meiboom—366
Memory, J. D.
High-resolution NMR spectrum of chrysene, J. D. Memory and Thomas B. Cobb—2386(L)
Erratum: High-resolution NMR spectrum of 1,2-benzanthracene, J. D. Memory and Thomas B. Cobb [**38,** 1453 (1963)]—3155(L)

Meredith, Robert E.
Absorption and emission spectrum of $CaF_2:U^{3+}$ from 2.1 to 2.5 microns, Robert E. Meredith and Joe A. Jenney—3127
Merrifield, R. E.
Tight-binding wavefunctions for electrons in molecular crystals in the presence of an electric field, R. E. Merrifield—3540(L)
Merts, A. L.
Some analytic solutions of the Hartree–Fock equations by an iterative least-squares method, A. L. Merts and M. D. Torrey—694
Metlay, Max
Fluorescence lifetime of the europium dibenzoylmethides, Max Metlay—491(L)
Meyerson, Seymour
Effects of isotopic labeling and molecular structure on probability of ionization by electron impact, Seymour Meyerson, H. M. Grubb, and R. W. Vander Haar—1445
Michaelsen, J. D.
Electron spin resonance of some arylsulfenyl radicals, P. J. Zandstra and J. D. Michaelsen—933
Michels, H. H.
Molecular orbital studies of excited states of HeH, H. H. Michels and F. E. Harris—1464
Mielczarek, S. R.
Determination of electronic energy levels of molecules by low-energy electron-impact spectroscopy, J. Arol Simpson and S. R. Mielczarek—1606(L)
Milberg, M. E.
Structure of oriented sodium metaphosphate glass fibers, M. E. Milberg and M. C. Daly—2966
Miller, B. S.
Crystal structure change of sodium azide at 19°C, B. S. Miller and G. J. King—2779(L)
Miller, Gerald R.
NMR study of the alkali hexafluorophosphates' dynamic structure, Gerald R. Miller and H. S. Gutowsky—1983
Miller, John G.
Electric dipole moment of trisilylamine, Ravi Varma, Alan G. MacDiarmid, and John G. Miller—3157(L)
Milligan, Dolphus E.
Infrared spectroscopic evidence for the species HNC, Dolphus E. Milligan and Marilyn E. Jacox—712
Molecular rotation and *ortho-para* nuclear spin conversion of water suspended in solid Ar, Kr, and Xe, Richard L. Redington and Dolphus E. Milligan—1276
Millikan, Roger C.
Vibrational energy exchange between N_2 and CO. The vibrational relaxation of nitrogen, Roger C. Millikan and Donald R. White—98
Vibrational relaxation of oxygen, Donald R. White and Roger C. Millikan—1803
Oxygen vibrational relaxation in O_2–He and O_2–Ar mixtures, Donald R. White and Roger C. Millikan—1807
Oxygen vibrational relaxation in O_2–H_2 mixtures, Donald R. White and Roger C. Millikan—2107(L)
Systematics of vibrational relaxation, Roger C. Millikan and Donald R. White—3209
Milne, D. G.
Photosensitized *cis–trans* isomerization of butene-2, R. B. Cundall, F. J. Fletcher, and D. G. Milne—3536(L)
Milne, Thomas A.
Mass spectrometric detection of polymers in supersonic molecular beams, Frank T. Greene and Thomas A. Milne—3150(L)
Mitchell, N.
Some new Raman shifts for naphthalene at low frequencies, N. Mitchell and D. C. Nelson—1364(L)
Mitchell, W. N.
Oxygen contamination and "pure" manganese sulfide, R. D. Archer and W. N. Mitchell—250(L)
Mitra, S. S.
Combination of the lattice modes with the internal modes in a crystal, S. S. Mitra—3031
Miyama, Hajime
Rotational temperatures of OH radicals in shock waves, Hajime Miyama and Tetsu Takeyama—851(L)
Moacanin, J.
Polymerization kinetics of biological macromolecules on templates, Robert Simha, J. M. Zimmerman, and J. Moacanin—1239
Mochel, V. D.
Electron coupling of nuclear spins. VII. J_{FF} for 2-fluorobenzotrifluorides, H. S. Gutowsky and V. D. Mochel—1195
Möller, K. D.
On the theory of torsional vibrations of $(CH_3)_3$–X type molecules, K. D. Möller and H. G. Andresen—17
Monchick, L.
Formal kinetic theory of transport phenomena in polyatomic gas mixtures, L. Monchick, K. S. Yun, and E. A. Mason—654
Montgomery, Charles G.
Quantum states of a triplet exciton gas, Harden M. McConnell and Charles G. Montgomery—252(L)
Moore, C. Bradley
Vibration–rotation spectrum of the perpendicular bending modes of CH_2N_2, C. Bradley Moore—1884
Moran, T. F.
Neon–hydrogen ion-molecule reactions, T. F. Moran and L. Friedman—2491
Moran, Thomas F.
Cross sections of ion–permanent-dipole reactions by mass spectrometry, Thomas F. Moran and William H. Hamill—1413
Morimoto, Yukiyoshi
Infrared spectra of metal chelate compounds. IX. A normal coordinate analysis of dithiocarbamato complexes, Kazuo Nakamoto, Junnosuke Fujita, Robert A. Condrate, and Yukiyoshi Morimoto—423
Morrison, J. A.
Thermodynamic properties of CH_4 and CD_4. Interpretation of the properties of the solids, J. H. Colwell, E. K. Gill, and J. A. Morrison—635
Morrison, J. D.
On the optimum use of ionization-efficiency data, J. D Morrison—200
Ionization potentials of doubly charged oxygen and nitrogen, F. H. Dorman and J. D. Morrison—1906(L)
Morton, J. R.
Electron spin resonance spectrum of XeF in γ-irradiated xenon tetrafluoride, J. R. Morton and W. E. Falconer—427

Moskowitz, J. W.
Pi electronic structure of the benzene molecule, J. W. Moskowitz and M. P. Barnett—1557
Mosser, J. S.
Thermodynamic properties of silicon tetrafluoride from 15°K to its triple point. The entropy from molecular and spectroscopic data, E. L. Pace and J. S. Mosser—154
Moulton, W. G.
Electron spin resonance of irradiated KH_2PO_4 and KD_2PO_4, W. E. Hughes and W. G. Moulton—1359(L)
Temperature dependence of the Cl^{35} pure quadrupole resonance in $NaClO_3$, W. D. Partlow and W. G. Moulton —2381(L)
Temperature dependence of the pure quadrupole resonance frequency and spin-lattice relaxation time in $NaBrO_3$ at low temperatures, R. F. Tipsword and W. G. Moulton —2730
Mozzi, R. L.
Cation distributions in nonstoichiometric magnesium ferrite, R. L. Mozzi and A. E. Paladino—435
Mueller, C. R.
Direct determination of scattering phase shifts from differential cross sections, J. W. Brackett, C. R. Mueller, and W. A. Sanders—2564
Direct determination of Intermolecular potential parameters from scattering phase shifts, W. A. Sanders and C. R. Mueller—2572
Muenter, John S.
Microwave spectrum, structure, and dipole moment of silyl acetylene, John S. Muenter and Victor W. Laurie—1181
Murashige, R.
Triplet–triplet transfer in plastic at 298° and 77°K, K. B. Eisenthal and R. Murashige—2108(L)
Murphy, James A.
Low-temperature limiting behavior of gas imperfections due to gas–solid interactions, Robert S. Hansen and James A. Murphy—1642
Musher, Jeremy I.
Calculation of London–van der Waals energies, Jeremy I. Musher—2409
Myers, B. R.
Effect of pressure on the activation energy of electrical conduction in aqueous solution, R. A. Horne, B. R. Myers, and G. R. Frysinger—2666

Naghizadeh, Jamshid
Transport in a two-component square-well fluid, Jamshid Naghizadeh—3406
Naiman, Charles S.
On the nature of the visible charge-transfer band of $K_3Fe(CN)_6$, Charles S. Naiman—1900(L)
Nakagawa, I.
Normal vibrations, potential constants, and vibration–rotation interaction constants in cyclobutane and cyclobutane-d_8, R. C. Lord and I. Nakagawa—2951
Nakamoto, Kazuo
Infrared spectra of metal chelate compounds. IX. A normal coordinate analysis of dithiocarbamato complexes, Kazuo Nakamoto, Junnosuke Fujita, Robert A. Condrate, and Yukiyoshi Morimoto—423
Nakhleh, Jamil
Application of the second-order WBK approximation to radial problems, Charles L. Beckel and Jamil Nakhleh—94
Namioka, T.
Isotope bands and the vibration assignment of the $D^2\pi_g$–$A^2\pi_u$ system of N_2^+, T. Namioka, K. Yoshino, and Y. Tanaka—2629
Nanda, V. S.
Continuum distribution for anionic polymers, V. S. Nanda and R. K. Jain—1363(L)
Nazaroff, George V.
Comparison of the Hartree–Fock orbital with the first natural spin orbital for two-electron systems, George V. Nazaroff and Joseph O. Hirschfelder—715; 3155(E)
Nebgen, John W.
Infrared spectrum and dipole–dipole coupling in crystalline cyanogen, Frank D. Verderame, John W. Nebgen, and Eugene R. Nixon—2274
Nelson, D. C.
Some new Raman shifts for naphthalene at low frequencies, N. Mitchell and D. C. Nelson—1364(L)
Nelson, F. A.
Removal of residual splitting in nuclear magnetic double resonance, W. A. Anderson and F. A. Nelson—183
Nelson, L. S.
Vaporization of tungsten studied by flash heating and kinetic spectroscopy. I. Near-ultraviolet region, L. S. Nelson and N. A. Kuebler—1055
Nelson, R. C.
Photoelectric phenomena in hemoglobin and dyed gelatin, R. C. Nelson—112
Electron spin resonance study of some organic photoconductors, B.-Y. Cho, R. C. Nelson, and L. C. Brown—499
Dark conductivity of cationic dye photoconductors, R. C. Nelson—859
Nelson, Richard
Microwave spectrum, molecular structure, and dipole moment of dimethylphosphine, Richard Nelson—2382(L)
Nesbet, R. K.
Electron structure of LiH and quadrupole moment of Li^7, S. L. Kahalas and R. K. Nesbet—529
Neuberger, Jacob
Frequency distribution and the specific heat of NaCl, Elizabeth M. Arase, Robert D. Hatcher, and Jacob Neuberger—353
Neuvar, Erwin W.
Microwave spectrum and structure of pentafluorosulfur bromide, Erwin W. Neuvar and Albert W. Jache—596
Newmark, R. A.
Time-weighted-average approximation in the NMR spectrum of $CF_2BrCFBrCl$, R. A. Newmark and C. H. Sederholm—3131
Neynaber, R. H.
Substantiation of a method for obtaining interatomic potential energy parameters, Erhard W. Rothe, R. H. Neynaber, Burton W. Scott, S. M. Trujillo, and P. K. Rol—493(L)

Nicholson, A. J. C.
Photo-ionization efficiency curves. Measurement of ionization potentials and interpretation of fine structure, A. J. C. Nicholson—954
Nieman, G. C.
Direct determination of exciton interactions for triplet states of organic crystals, G. C. Nieman and G. W. Robinson—1298
Errata: Triplet–triplet annihilation and delayed fluorescence in molecular aggregates; errata and comments concerning ruby-laser-induced fluorescence in anthracene crystals, H. Sternlicht, G. C. Nieman, and G. W. Robinson [38, 1326 (1963)]—1610(L)
Nigam, R. K.
Entropy of fusion of molecular complexes, R. P. Rastogi, R. K. Nigam, R. N. Sharma, and H. L. Girdhar—3042
Nitta, Isamu
Photoinduced change of organic free radicals as studied by ESR. I. Conversion of allyl-type to alkyl-type radicals in irradiated polyethylene, Shun-ichi Ohnishi, Shun-ichi Sugimoto, and Isamu Nitta—2647
ESR study of free radicals produced in irradiated cyclopentadiene and cyclohexene: the cyclopentadienyl and cyclohexenyl radicals, Shun-ichi Ohnishi and Isamu Nitta—2848
Nixon, Eugene R.
Infrared spectrum and dipole–dipole coupling in crystalline cyanogen, Frank D. Verderame, John W. Nebgen, and Eugene R. Nixon—2274
Nordling, Jan
On the calculation of some atomic integrals containing functions of r_{12}, r_{13}, and r_{23}, Yngve Öhrn and Jan Nordling—1864

Ogden, J. S.
Transpiration study of magnesium oxide, C. A. Alexander, J. S. Ogden, and A. Levy—3057
Ohnishi, Shun-ichi
Photoinduced change of organic free radicals as studied by ESR. I. Conversion of allyl-type to alkyl-type radicals in irradiated polyethylene, Shun-ichi Ohnishi, Shun-ichi Sugimoto, and Isamu Nitta—2647
ESR study of free radicals produced in irradiated cyclopentadiene and cyclohexene: the cyclopentadienyl and cyclohexenyl radicals, Shun-ichi Ohnishi and Isamu Nitta—2848
Ohno, Kimio
"Bond-orbital" and "modified electron-pair" calculations on the ammonia molecule, Atsushi Tsuchida and Kimio Ohno—600
Öhrn, Yngve
On the calculation of some atomic integrals containing functions of r_{12}, r_{13}, and r_{23}, Yngve Öhrn and Jan Nordling—1864
Okabe, H.
Vacuum ultraviolet photochemistry. VII. Photolysis of *n*-butane, H. Okabe and D. A. Becker—2549
O'Keeffe, Michael
Infrared optical properties of cuprous oxide, Michael O'Keeffe—1789
O'Kelly, L. B.
Time-of-flight investigations of electron transport in gases, G. S. Hurst, L. B. O'Kelly, E. B. Wagner, and J. A. Stockdale—1341
Olson, J. R.
Sound dispersion in substituted methane–inert gas mixtures, J. R. Olson and Sam Legvold—2902
Ono, Naoya
Correlation between Stokes shift and stability constant of 6,7-dihydroxynaphthalene-2-sulfonic acid metal chelates, Naoya Ono and Kazushi Hirota—1907(L)
Oppenheim, Irwin
Thermodynamic properties of a monatomic hydrogen gas at high temperatures, Irwin Oppenheim and Dennis R. Hafemann—101
Approximate quantum-mechanical law of corresponding states, Irwin Oppenheim—2771(L)
Orcutt, Ronald H.
Influence of molecular quadrupole moments on the second virial coefficient, Ronald H. Orcutt—605
O'Reilly, D. E.
Rate of exchange of halide nuclei with mercury (II) in aqueous solution, D. E. O'Reilly, G. E. Schacher, and K. Schug—1756
Rotational correlation times for quadrupolar relaxation in liquids, D. E. O'Reilly and G. E. Schacher—1768
O'Toole, James T.
Boltzmann equation and inverse collisions. II. A model for association and dissociation, James T. O'Toole and John S. Dahler—3214
Overend, John
Adaptation of the Urey–Bradley force field to NH_3, PH_3, SbH_3, and AsH_3, Marian Pariseau, Ellen Wu, and John Overend—217
Owens, B. B.
Melting properties of silver nitrate to 10 000 atm, B. B. Owens—1053
Calculation of heats of vaporization and fusion of nonionic liquids from the rigid-sphere equation of state, S. J. Yosim and B. B. Owens—2222

Pace, E. L.
Thermodynamic properties of silicon tetrafluoride from 15°K to its triple point. The entropy from molecular and spectroscopic data, E. L. Pace and J. S. Mosser—154
Padova, J.
Ion-solvent interaction. II. Partial molar volume and electrostriction: a thermodynamic approach, J. Padova—1552
Densities and molar volumes of electrolytes in mixed solvents, J. Padova—2599
Pake, G. E.
Linear antiferromagnetism in the organic free radical 1,3-bisdiphenylene-2-phenyl allyl, W. O. Hamilton and G. E. Pake—2694
Paladino, A. E.
Cation distributions in nonstoichiometric magnesium ferrite, R. L. Mozzi and A. E. Paladino—435
Pankey, Titus
Antiferromagnetism of $UO_2 \cdot 2H_2O$, Titus Pankey, Frank E. Senftle, and Frank Cuttitta—1702

Pappalardo, Romano
Do the "ligand field" parameters in lanthanides represent weak covalent bonding? Chr. Klixbüll Jørgensen, Romano Pappalardo, and Hans-Herbert Schmidtke—1422
Pariseau, Marian
Adaptation of the Urey–Bradley force field to NH_3, PH_3, SbH_3, and AsH_3, Marian Pariseau, Ellen Wu, and John Overend—217
Pariser, Rudolph
Copolymerization as a Markov chain, H. Karl Frensdorff and Rudolph Pariser—2303
Parker, Paul M.
Erratum: Asymmetric-top vibration–rotation Hamiltonians, K. T. Chung and Paul M. Parker [**38,** 8 (1963)]—240(L)
Parr, Robert G.
One-center perturbation approach to molecular electronic energies. I. Exposition of the method, Peter Hauk, Robert G. Parr, and Hendrik F. Hameka—2085
Partlow, W. D.
Temperature dependence of the Cl^{35} pure quadrupole resonance in $NaClO_3$, W. D. Partlow and W. G. Moulton—2381(L)
Paul, R.
Isotopic thermal-diffusion factor of argon, R. Paul, A. J. Howard, and W. W. Watson—3053
Paulett, Grover S.
Mass spectra and appearance potentials of diazirine and diazomethane, Grover S. Paulett and Raymond Ettinger—825; 3534(E)
Pauncz, R.
Studies on the alternant molecular orbital method. V. A many-parameter energy expression for states with different multiplicities; application to benzene, J. de Heer and R. Pauncz—2314
Pavlopoulos, T.
Polarization of the triplet–triplet absorption spectrum of some polyacenes by the method of photoselection, M. A. El-Sayed and T. Pavlopoulos—834
Intramolecular heavy-atom effect on the polarization of naphthalene phosphorescence, M. A. El-Sayed and T. Pavlopoulos—1899(L)
Peacock, R. N.
Radiotracer measurement of the desorption energy of silver from molybdenum and nickel, E. von Goeler and R. N. Peacock—169
Pedersen, Bjørn
NMR in hydrate crystals: structural information from second moments, Bjørn Pedersen—720
Perkins, J. F.
Variational calculations of some S states in two-electron atoms, J. F. Perkins—687
Person, Willis B.
Absolute infrared intensities in some crystalline hydrogen halides, H. Bruce Friedrich and Willis B. Person—811
Petch, H. E.
NMR studies of hydrated sodium tetraborate minerals. II. Na^{23} sites in borax and tincalconite, J. D. Cuthbert and H. E. Petch—1247
Peter, Rainer
Tables for the analysis of rotational spectra containing centrifugal distortion and torsional splitting, Helmut Dreizler and Rainer Peter—1132(L)
Peterlin, A.
Mean dimensions of macromolecular coil in laminar flow, A. Peterlin—224
Petersen, H. L.
Kinetics of three-body atom recombination, C. B. Kretschmer and H. L. Petersen—1772
Peterson, James M.
Viscosity of polymer solutions, James M. Peterson and M. Fixman—2516
Peticolas, Warner L.
Double-photon excitation of organic molecules in dilute solution, W. L. Peticolas and K. E. Rieckhoff—1347(L)
Molecular weight distribution of linear polymers from stress relaxation in polymer melts, Warner L. Peticolas—3392
Petrakis, L.
Rotational transition and self-diffusion in polycrystalline succinonitrile, L. Petrakis and A. Rao—1633
Pettit, R.
Mössbauer studies of iron organometallic complexes. I. Iron tetracarbonyl complexes, R. L. Collins and R. Pettit—3433
Phillips, W. D.
Proton spin–spin coupling constants from the NMR spectra of paramagnetic molecules, D. R. Eaton, A. D. Josey, W. D. Phillips, and R. E. Benson—3513
Phillipson, Paul
Electronic bases of molecular vibrations. I. General theory for diatomic molecules, Paul Phillipson—3010
Piegger, E.
Structural and magnetic characteristics of $TiFe_2$–$ZrFe_2$ and $ZrCo_2$–$ZrFe_2$ alloys, E. Piegger and R. S. Craig—137
Pitts, James N., Jr.
Primary process in the photolysis of nitrogen dioxide at 4047 Å and a spectroscopic–photochemical determination of the dissociation energy, James N. Pitts, Jr., James H. Sharp, and Sunney I. Chan—238(L)
Pitzer, Russell M.
Calculation of the barrier to internal rotation in ethane, Russell M. Pitzer and William N. Lipscomb—1995
Poindexter, Edward H.
Transition probabilities in a dipole-coupled system of protons and delocalized electrons, Edward H. Poindexter—1860
Proton relaxation in deuterated solutions of asphalt, Edward H. Poindexter—2772(L)
Poole, Charles P., Jr.
Optical reflection spectra of chromia–alumina, Charles P. Poole, Jr., and John F. Itzel, Jr.—3445
Porter, Richard N.
Sensitivity of exchange-reaction probabilities to the potential-energy surface, Frederick T. Wall and Richard N. Porter—3112
Potter, A. E., Jr.
Reaction rates of hydrogen, ammonia, and methane with mixtures of atomic and molecular oxygen, Edgar L. Wong and A. E. Potter, Jr.—2211
Potter, N. D.
Thermodynamics of vaporization of lithium oxide, boric oxide, and lithium metaborate, D. L. Hildenbrand, W. F. Hall, and N. D. Potter—296

Powell, C. J.
Excitation of π electrons in polystyrene and similar polymers by 20-keV electrons, N. Swanson and C. J. Powell—630
Powell, F. X.
Secondary Raman effect, F. X. Powell—1606(L)
Powell, R.
Structure of zinc oxide nuclei, G. W. Sears, R. Powell, and B. Donn—2248
Powers, John C., Jr.
Photochemical formation of phenanthrene from *cis*-stilbene in the vapor phase, R. Srinivasan and John C. Powers, Jr.—580
Poynter, Robert L.
Microwave spectrum, quadrupolar coupling constants, and dipole moment of chlorobenzene, Robert L. Poynter—1962
Prag, A. B.
Ultraviolet spectra of the nitrogen pink afterglow, C. E. Fairchild, A. B. Prag, and K. C. Clark—794
Excitation mechanism for the nitrogen pink afterglow, A. B. Prag and K. C. Clark—799
Prager, Stephen
Statistical mechanics of cross-linked polymers: formation of the infinite network, Horst Brodowsky and Stephen Prager—1103
Upper and lower bounds for ground-state second-order perturbation energy, Stephen Prager and Joseph O. Hirschfelder—3289
Prausnitz, J. M.
On the vapor–liquid equilibrium for the helium–hydrogen system, C. A. Eckert and J. M. Prausnitz—246(L)
Spectroscopic evidence for complex formation between carbon tetrachloride and aromatic hydrocarbons, Ralph Anderson and J. M. Prausnitz—1225
Provder, T.
Dielectric relaxation of some aromatic molecules containing methoxy groups, W. E. Vaughan, S. B. W. Roeder, and T. Provder—701
Pruppacher, Hans R.
Some relations between the supercooling and the structure of aqueous solutions, Hans R. Pruppacher—1586

Quail, J. W.
Sulfur and silicon isotope effects in fluorine nuclear magnetic resonance spectroscopy, R. J. Gillespie and J. W. Quail—2555
Quinn, R. G.
Dielectric dispersion of a polar–nonpolar liquid mixture near the critical solution temperature, R. G. Quinn and C. P. Smyth—3285

Rabinovitch, B. S.
Unimolecular decomposition of chemically activated propyl radicals. Normal intermolecular secondary kinetic isotope effect, W. E. Falconer, B. S. Rabinovitch, and R. J. Cvetanović—40
Collisional transition probabilities for vibrational deactivation of chemically activated *sec*-butyl radicals. Different initial vibrational energy levels, G. H. Kohlmaier and B. S. Rabinovitch—490(L)
Decomposition of chemically activated ethyl-d_1 radicals, J. H. Current, B. S. Rabinovitch, C. A. Heller, and A. S. Gordon—3535(L)
Raff, Lionel M.
Differences between low-energy electron-impact spectra at 0° and at large scattering angle, Aron Kuppermann and Lionel M. Raff—1607(L)
Rajan, R.
Electron spin resonance in ethylenediamine complexes of copper (II) sulfate, R. Rajan and T. Ramasubba Reddy—1140(L)
Ralph, J. E.
Optical studies of anisotropic color centers in germanium-doped quartz, A. Halperin and J. E. Ralph—63
Ramey, K. C.
Temperature dependence of fluorine nuclear spin–spin coupling constants, Wallace S. Brey, Jr., and K. C. Ramey—844(L)
Rank, D. H.
Collision narrowing of spectral lines. H_2 quadrupole spectrum, D. H. Rank and T. A. Wiggins—1348(L)
Gas-phase complexes in hydrogen chloride, D. H. Rank, P. Sitaram, W. A. Glickman, and T. A. Wiggins—2673
Rao, A.
Rotational transition and self-diffusion in polycrystalline succinonitrile, L. Petrakis and A. Rao—1633
Rao, V. M.
Microwave spectrum of methyl isocyanate, R. F. Curl, Jr., V. M. Rao, K. V. L. N. Sastry, and Jimmie A. Hodgeson—3335
Rast, Howard E., Jr.
Radiationless triplet–singlet transitions in naphthalene, Steven G. Hadley, Howard E. Rast, Jr., and Richard A. Keller—705
Rastogi, R. P.
On the choice of phenomenological coefficients, R. P. Rastogi and R. L. Blokhra—241(L)
Entropy of fusion of molecular complexes, R. P. Rastogi, R. K. Nigam, R. N. Sharma, and H. L. Girdhar—3042
Raw, C. J. G.
Viscosity and diffusion coefficients of gaseous sulfur hexafluoride–carbon tetrafluoride mixtures, C. J. G. Raw and Helen Tang—2616
Raziunas, Victor
Emission spectrum and thermodynamic properties of gallium monoxide, Victor Raziunas, George J. Macur, and Sidney Katz—1161
Reddy, G. S.
Diamagnetic anisotropy effects of C≡C and C≡N bonds in nuclear magnetic resonance spectroscopy, G. S. Reddy and J. H. Goldstein—3509
Reddy, T. Ramasubba
Electron spin resonance in ethylenediamine complexes of copper (II) sulfate, R. Rajan and T. Ramasubba Reddy—1140(L)
Redington, Richard L.
Molecular rotation and *ortho-para* nuclear spin conversion of water suspended in solid Ar, Kr, and Xe, Richard L. Redington and Dolphus E. Milligan—1276

Reeves, C. M.
Use of Gaussian functions in the calculation of wavefunctions for small molecules. I. Preliminary investigations, C. M. Reeves—1
Use of Gaussian functions in the calculation of wavefunctions for small molecules. II. The ammonia molecule, C. M. Reeves and M. C. Harrison—11
Reilly, C. A.
Assignment of NMR spectra with the aid of double-quantum transitions, W. A. Anderson, R. Freeman, and C. A. Reilly—1518
Reis, Victor H.
Separation of gas mixtures in supersonic jets, Victor H. Reis and John B. Fenn—3240
Resibois, P.
On the kinetics of chemisorption, R. Coekelbergs, A. Frennet, G. Lienard, and P. Resibois—585
Reucroft, P. J.
Trap density and depth in *p*-chloranil crystals, P. J. Reucroft, O. N. Rudyj, and M. M. Labes—1136(L)
Reynolds, F. L.
Ionization on tungsten single-crystal surfaces, F. L. Reynolds—1107
Rhee, K. H.
Infrared spectra of the germyl halides, D. E. Freeman, K. H. Rhee, and M. K. Wilson—2908
Ricci, Robert
General acid catalysis of the fading of photoisomerized 2,4-dinitrotoluene, Gunnar Wettermark and Robert Ricci—1218
Rice, Stuart A.
On the kinetic theory of dense fluids. XIV. Experimental and theoretical studies of thermal conductivity in liquid Ar, Ke, Xe, and CH_4, Lynn D. Ikenberry and Stuart A. Rice—1561
On the excess electron and hole band structures and carrier mobility in naphthalene, anthracene, and several polyphenyls, Joseph L. Katz, Stuart A. Rice, Sang-il Choi, and Joshua Jortner—1683
Triplet exciton bands in aromatic crystals, Joseph L. Katz, Joshua Jortner, Sang-il Choi, and Stuart A. Rice—1897(L)
Solvent effects and a test of the theory of hypochromism, Martin T. Vala, Jr., and Stuart A. Rice—2348
Richman, Isaac
Lattice vibrations of $LaCl_3$ and $LaBr_3$ from vibronic spectra, Isaac Richman, Robert A. Satten, and Eugene Y. Wong—1833
Riebling, E. F.
Structure of molten oxides. I. Viscosity of GeO_2, and binary germanates containing Li_2O, Na_2O, K_2O, and Rb_2O, E. F. Riebling—1889
Structure of molten oxides. II. A density study of binary germanates containing Li_2O, Na_2O, K_2O, and Rb_2O, E. F. Riebling—3022
Rieckhoff, K. E.
Double-photon excitation of organic molecules in dilute solution, W. L. Peticolas and K. E. Rieckhoff—1347(L)
Rieger, Philip H.
Analysis of the electron spin resonance spectra of aromatic nitrosubstituted anion radicals, Philip H. Rieger and George K. Fraenkel—609
Ring, J. W.
Dielectric relaxation in the 1-propanol-2-methylpentane system, D. J. Denney and J. W. Ring—1268
Roberts, B. W.
Fluoride interference films on uranium dioxide. II. Kinetics of the hydrofluorination reaction, W. P. Ellis and B. W. Roberts—1176
Robertson, W. M.
Crystallography of impurity adsorption on copper surfaces, W. M. Robertson and P. G. Shewmon—2330
Robertson, W. W.
Relationship between spectral shifts and solubility for naphthalene in compressed nonpolar gases, A. D. King, Jr., and W. W. Robertson—3071
Robinson, Dean W.
Spectra of matrix-isolated water in the "pure rotation" region, Dean W. Robinson—3430
Robinson, G. W.
Direct determination of exciton interactions for triplet states of organic crystals, G. C. Nieman and G. W. Robinson—1298
Errata: Triplet–triplet annihilation and delayed fluorescence in molecular aggregates; errata and comments concerning ruby-laser-induced fluorescence in anthracene crystals, H. Sternlicht, G. C. Nieman, and G. W. Robinson [**38**, 1326 (1963)]—1610(L)
Roeder, S. B. W.
Dielectric relaxation of some aromatic molecules containing methoxy groups, W. E. Vaughan, S. B. W. Roeder, and T. Provder—701
Rol, P. K.
Substantiation of a method for obtaining interatomic potential energy parameters, Erhard W. Rothe, R. H. Neynaber, Burton W. Scott, S. M. Trujillo, and P. K. Rol—493(L)
Ron, A.
Overtone frequency and double excitation in the hydrogen chloride crystal, A. Ron and D. F. Hornig—1129(L)
Root, John W.
Recoil tritium reactions: variations in hot abstraction yield with C–H bond type, William Breckenridge, John W. Root, and F. W. Rowland—2374(L)
Roscoe, J.
Homonuclear decoupling: P^{31}–P^{31}, H. Agahigian, G. D. Vickers, J. Roscoe, and J. Bishop—1621(L)
Rosenstock, Henry M.
Metastable transitions in mass spectra of methane and the deuteromethanes, Veron H. Dibeler and Henry M. Rosenstock—1326
Mass spectra and metastable transitions of H_2S, HDS, and D_2S, Vernon H. Dibeler and H. M. Rosenstock—3106
Rotenberg, A.
Calculation of exact eigenfunctions of spin and orbital angular momentum using the projection operator method, A. Rotenberg—512
Rothe, Erhard W.
Substantiation of a method for obtaining interatomic potential energy parameters, Erhard W. Rothe, R. H. Neynaber, Burton W. Scott, S. M. Trujillo, and P. K. Rol—493(L)

Rouault, Marcel
Calculation of x-ray and electron intensities scattered by the NH_3 and H_2O molecules, Claude Tavard, Marcel Rouault, Monique Roux, and Marguerite Cornille—2390(L)

Rousseau, Yves
Electrophilic character of the Hg $6(^3P_1)$ atom and the mechanism of electronic energy transfer in mercury photosensitization, Yves Rousseau, O. P. Strausz, and H. E. Gunning—962

Roux, Monique
Calculation of x-ray and electron intensities scattered by the NH_3 and H_2O molecules, Claude Tavard, Marcel Rouault, Monique Roux, and Marguerite Cornille—2390(L)

Rowland, F. W.
Recoil tritium reactions: variations in hot abstraction yield with C–H bond type, William Breckenridge, John W. Root, and F. W. Rowland—2374(L)

Rudyj, O. N.
Trap density and depth in *p*-chloranil crystals, P. J. Reucroft, O. N. Rudyj, and M. M. Labes—1136(L)

Rugheimer, John H.
Nuclear magnetic relaxation and diffusion in liquid CH_4, CF_4, and mixtures of CH_4 and CF_4 with argon, John H. Rugheimer and Paul S. Hubbard—552

Rushbrooke, G. S.
On the thermodynamics of the critical region for the Ising problem, G. S. Rushbrooke—842(L)

Rustgi, M. L.
Nuclear magnetic shielding constants and x-ray atomic scattering factors for two-, three-, and four-electron systems by means of analytic Hartree–Fock wavefunctions, M. L. Rustgi and P. Tiwari—2590

Sack, R. A.
Analogies between higher-order analytical and numerical perturbation–iteration methods, R. A. Sack—3275

Sado, Akira
Semiempirical calculation on the lower electronic states of the benzene molecule, Tosinobu Anno and Akira Sado—2293

Safford, G. J.
Low-frequency motions of H_2O molecules in natrolite, Henri Boutin, G. J. Safford, and H. R. Danner—488(L)
Low-frequency molecular motions in polyethylene, G. J. Safford, H. R. Danner, and H. Boutin—1134(L)
Study of low-frequency molecular motions in HF, KHF_2, KH_2F_3, and NaH_2F_3, Henri Boutin, G. J. Safford, and Velko Brajovic—3135

Sage, Gloria
Far-infrared spectrum and barrier to internal rotation of ethyl fluoride, Gloria Sage and William Klemperer—371

Saito, Nobufusa
Radiation decomposition of aqueous nitrite solution containing mercuric salts, Kenichi Shinohara, Tadamasa Shida, and Nobufusa Saito—1470
Photolysis of aqueous nitrite solution containing mercuric salts, Kenichi Shinohara, Tadamasa Shida, and Nobufusa Saito—1474
Photolysis of aqueous azide solution containing mercuric salts, Kenichi Shinohara, Tadamasa Shida, and Nobufusa Saito—1477

Salem, L.
On numerical calculations by the Hellmann–Feynman procedure, L. Salem and M. Alexander—2994

Salem, Sema'an I.
Effective depth of formation of x-ray line radiation, Sema'an I. Salem and John C. Watts—2259

Salovey, R.
Electron spin resonance of irradiated DNA, R. Salovey, R. G. Shulman, and W. M. Walsh, Jr.—839(L)

Samelson, H.
Fluorescence and lifetimes of Eu chelates, H. Samelson and A. Lempicki—110

Sanders, W. A.
Direct determination of scattering phase shifts from differential cross sections, J. W. Brackett, C. R. Mueller, and W. A. Sanders—2564
Direct determination of intermolecular potential parameters from scattering phase shifts, W. A. Sanders and C. R. Mueller—2572

Sandler, Stanley R.
Fluorescence spectral study of wavelength shifters for scintillation plastics, Stanley R. Sandler and K. C. Tsou—1062

Sando, Kenneth M.
Truncated reaction operators, William J. Meath, Kenneth M. Sando, S. Osvaldo Goscinski, and Joseph O. Hirschfelder—2429

Sarachman, T. N.
Microwave spectrum of normal propyl chloride, T. N. Sarachman—469

Sastri, M. L. N.
Infrared spectra of HF–DF mixed crystals and the structure of hydrogen fluoride, M. L. N. Sastri and D. F. Hornig—3497

Sastry, K. V. L. N.
Millimeter wave spectroscopy of unstable molecular species. I. Carbon monosulfide, Roger Kewley, K. V. L. N. Sastry, Manfred Winnewisser, and Walter Gordy—2856
Microwave spectrum of methyl isocyanate, R. F. Curl, Jr., V. M. Rao, K. V. L. N. Sastry, and Jimmie A. Hodgeson—3335

Sato, Shin
Benzene photosensitized *cis-trans* isomerization of butene-2, Shin Sato, Kiyoaki Kikuchi, and Masahiro Tanaka—239(L)

Satten, Robert A.
Analysis of the electronic spectra of neodymium ethylsulfate, John B. Gruber and Robert A. Satten—1455
Lattice vibrations of $LaCl_3$ and $LaBr_3$ from vibronic spectra, Isaac Richman, Robert A. Satten, and Eugene Y. Wong—1833

Saul, Albert M.
Transpiration and mass spectrometric studies of equilibria involving BOF(g) and $(BOF)_3$(g), Donald L. Hildenbrand, Lowell P. Theard, and Albert M. Saul—1973

Savitsky, G. B.
Vibration–rotation spectra of CH_4 and CD_4 impurities in xenon, krypton, and argon crystals, A. Cabana, G. B. Savitsky, and D. F. Hornig—2942

Saxton, J. A.
Dispersion at millimeter wavelengths in methyl and ethyl alcohols, J. A. Saxton—842(L)
Schacher, G. E.
Rate of exchange of halide nuclei with mercury (II) in aqueous solution, D. E. O'Reilly, G. E. Schacher, and K. Schug—1756
Rotational correlation times for quadrupolar relaxation in liquids, D. E. O'Reilly and G. E. Schacher—1768
Scharpen, LeRoy H.
Structure of isobutylene, LeRoy H. Scharpen and Victor W. Laurie—1732
Schatz, P. N.
Absolute infrared intensity measurements in thin films. II. Solids deposited on halide plates, S. Maeda, G. Thyagarajan, and P. N. Schatz—3474
Scheer, Milton D.
Kinetics of desorption. III. Rb^+, K^+, and Na^+ on rhenium, Milton D. Scheer and Joseph Fine—1752
Scherr, Charles W.
Isotope shifts in the 2^1P and 2^3P states of He and Li^+ systems, Milos Machacek and Charles W. Scherr—3151(L)
Schmeltekopf, Arthur L., Jr.
Short-duration visible afterglow in helium, Arthur L. Schmeltekopf, Jr., and H. P. Broida—1261
Schmid, E. D.
Chemical shifts of the *meta* protons of some 2,4,6-trideuterated monoderivatives of benzene, F. Langenbucher, E. D. Schmid, and R. Mecke—1901(L)
Schmidt, Paul W.
X-ray study of critical opalescence in argon, J. E. Thomas and Paul W. Schmidt—2506
Schmidtke, Hans-Herbert
Do the "ligand field" parameters in lanthanides represent weak covalent bonding? Chr. Klixbüll Jørgensen, Romano Pappalardo, and Hans-Herbert Schmidtke—1422
Schneider, W. G.
Nuclear spin–spin coupling involving heavy nuclei. The coupling between Hg^{199} and H^1 nuclei in CH_3HgX and CH_3CH_2HgX compounds, J. V. Hatton, W. G. Schneider, and W. Siebrand—1330
Ruby-laser excited photocurrents in anthracene single crystals, K. Hasegawa and W. G. Schneider—1346(L)
Schnepp, O.
Removal of orbital degeneracy in an asymmetric molecular environment, M. Brith and O. Schnepp—2714
Scholtus, N. A.
Hysteresis in the palladium–hydrogen system, N. A. Scholtus and W. Keith Hall—868
Schott, Dan J.
Diffusion and heterogeneous reaction. V. Transition from a surface- to a diffusion-controlled process during atom recombination, Henry Wise, Clarence M. Ablow, and Dan J. Schott—2063
Schug, John C.
Valence-bond theory of resonance: aniline, phenol, and fluorobenzene, John C. Schug—2798
Schug, K.
Rate of exchange of halide nuclei with mercury (II) in aqueous solution, D. E. O'Reilly, G. E. Schacher, and K. Schug—1756
Schuler, Robert H.
Electron spin resonance studies of transient alkyl radicals, Richard W. Fessenden and Robert H. Schuler—2147
Schwarz, Gerhard
General equation for the mean electrical energy of a dielectric body in an alternating electrical field, Gerhard Schwarz—2387(L)
Scott, Burton W.
Substantiation of a method for obtaining interatomic potential energy parameters, Erhard W. Rothe, R. H. Neynaber, Burton W. Scott, S. M. Trujillo, and P. K. Rol—493(L)
Scott, Gene J.
Melting and polymorphism in $SbCl_3$ and $SbBr_3$, Billy F. Bowles, Gene J. Scott, and Stanley E. Babb, Jr.—831
Searcy, Alan W.
Energy exchange between a hot tungsten surface and cold gases, Gerald L. De Poorter and Alan W. Searcy—925
Sears, Gerald W.
Structure of zinc oxide nuclei, G. W. Sears, R. Powell, and B. Donn—2248
Mobility of silver crystallites on surfaces of MoS_2 and graphite, Gerald W. Sears and John B. Hudson—2380(L)
Morphological development of aluminum oxide crystals grown by vapor deposition, G. W. Sears and R. C. DeVries—2837
Growth of anthracene whiskers by vapor deposition, Gerald W. Sears—2846
Sederholm, C. H.
Time-weighted-average approximation in the NMR spectrum of $CF_2BrCFBrCl$, R. A. Newmark and C. H. Sederholm—3131
Senftle, Frank E.
Antiferromagnetism of $UO_2 \cdot 2H_2O$, Titus Pankey, Frank E. Senftle, and Frank Cuttitta—1702
Seshadri, K. S.
Infrared spectra, and the structures and thermodynamics of gaseous LiO, Li_2O, and Li_2O_2, David White, K. S. Seshadri, D. F. Dever, D. E. Mann, and M. J. Linevsky—2463
Shapiro, B. L.
Proton NMR studies of CHDO and CH_2O, B. L. Shapiro, R. M. Kopchik, and S. J. Ebersole—3154(L)
Sharma, P. K.
Model for the lattice dynamics of metals and its application to sodium, P. K. Sharma and S. K. Joshi—2633
Sharma, R. N.
Entropy of fusion of molecular complexes, R. P. Rastogi, R. K. Nigam, R. N. Sharma, and H. L. Girdhar—3042
Sharma, Ramesh D.
On induced transitions and line shifts in the rotation–vibration spectra of pressurized diatomic gases, Ramesh D. Sharma and George C. Turrell—2638
Sharp, James H.
Primary process in the photolysis of nitrogen dioxide at 4047 Å and a spectroscopic–photochemical determination of the dissociation energy, James N. Pitts, Jr., James H. Sharp, and Sunney I. Chan—238(L)
Sharpless, Robert L.
Chemiluminescent reactions involving atomic oxygen and nitrogen, Robert A. Young and Robert L. Sharpless—1071

Chemi-ionization in atomic O and N mixtures, Carole R. Gatz, Robert A. Young, and Robert L. Sharpless—1234

Sheinblatt, M.
NMR study of the protolysis kinetics in simple amino acids. II. Sarcosine (the zwitterion form), M. Sheinblatt—2005

Shepley, L. C.
Deuterium isotope effect on glass transformation temperatures of aqueous inorganic solutions, L. C. Shepley and A. B. Bestul—680

Shewmon, P. G.
Crystallography of impurity adsorption on copper surfaces, W. M. Robertson and P. G. Shewmon—2330

Shida, Tadamasa
Radiation decomposition of aqueous nitrite solution containing mercuric salts, Kenichi Shinohara, Tadamasa Shida, and Nobufusa Saito—1470
Photolysis of aqueous nitrite solution containing mercuric salts, Kenichi Shinohara, Tadamasa Shida, and Nobufusa Saito—1474
Photolysis of aqueous azide solution containing mercuric salts, Kenichi Shinohara, Tadamasa Shida, and Nobufusa Saito—1477

Shilman, A.
Photochemical studies in flash photolysis. III. Photolysis of acetone in different wavelength regions, A. Shilman and R. A. Marcus—996

Shimanouchi, T.
Electrostatic interaction between the two dipoles of substituents in the syndiotactic and the isotactic vinyl polymers, T. Fujiyama and T. Shimanouchi—1138(L)

Shin, H.
Approximate expression for the tunnelling correction, H. Shin—2934
On the hydrogen–bromine reaction rate in a nonsteady state, H. Shin—2937

Shinohara, Kenichi
Radiation decomposition of aqueous nitrite solution containing mercuric salts, Kenichi Shinohara, Tadamasa Shida, and Nobufusa Saito—1470
Photolysis of aqueous nitrite solution containing mercuric salts, Kenichi Shinohara, Tadamasa Shida, and Nobufusa Saito—1474
Photolysis of aqueous azide solution containing mercuric salts, Kenichi Shinohara, Tadamasa Shida, and Nobufusa Saito—1477

Shirley, D. A.
Electron transfer in dilute gold alloys, P. H. Barrett, R. W. Grant, Morton Kaplan, D. A. Keller, and D. A. Shirley—1035
Quadrupole antishielding in the rare earths, Johan Blok and D. A. Shirley—1128(L)

Shite, R. Milford
Fragmentation of the excited parent ions, $[CH_3Kr^{82}]^+$ and $[CH_3O^{18}]^-$, following the β^- decay of CH_3Br^{82} and the β^+ decay of CH_3F^{18}, Thomas A. Carlson and R. Milford Shite—1748

Shulman, R. G.
Electron spin resonance of irradiated DNA, R. Salovey, R. G. Shulman, and W. M. Walsh, Jr.—839(L)

Shuskus, Alexander J.
Paramagnetic defects in irradiated CaO, Alexander J. Shuskus—849(L)

Sibley, W. A.
Variation of coloration rates and luminescence in Harshaw potassium chloride, C. T. Butler, W. A. Sibley, and E. Sonder—242(L)

Siebrand, W.
Nuclear spin–spin coupling involving heavy nuclei. The coupling between Hg^{199} and H^1 nuclei in CH_3HgX and CH_3CH_2HgX compounds, J. V. Hatton, W. G. Schneider, and W. Siebrand—1330

Siegel, Seymour
Model for OH-radical stabilization in ice at 77°K under γ irradiation, Seymour Siegel—390

Siemons, W. J.
Electronic properties of a new class of highly conductive organic solids, W. J. Siemons, P. R. Bierstedt, and R. G. Kepler—3523

Silver, M.
Physical and chemical effects at the anthracene–electrolyte interface due to photoelectrolysis, R. C. Jarnagin, J. Gilliland, Jr., J. S. Kim, and M. Silver—573
Relative contributions of singlet–singlet and singlet–triplet interactions to the photogeneration of carriers of anthracene, M. Silver, S. Z. Weisz, J. S. Kim, and R. C. Jarnagin—3163(L)

Silvidi, A. A.
Motion of the H_2O molecule in barium chlorate monohydrate, J. W. McGrath and A. A. Silvidi—3017

Simha, Robert
Polymerization kinetics of biological macromolecules on templates, Robert Simha, J. M. Zimmerman, and J. Moacanin—1239

Simpson, J. Arol
Determination of electronic energy levels of molecules by low-energy electron-impact spectroscopy, J. Arol Simpson and S. R. Mielczarek—1606(L)

Simpson, Paul G.
Molecular, crystal, and valence structures of $B_{18}H_{22}$, Paul G. Simpson and William N. Lipscomb—26
Molecular and crystal structure of $C_2H_5NH_2B_9H_{11}NHC_2H_5$, Ruth Lewin, Paul G. Simpson, and William N. Lipscomb—1532
Molecular, crystal, and valence structures of Iso-$B_{18}H_{22}$, Paul G. Simpson, Kirsten Folting, Robert D. Dobrott, and William N. Lipscomb—2339

Simpson, William T.
Correlations among electronic transitions for carbonyl and for carboxyl in the vacuum ultraviolet, Edwin E. Barns and William T. Simpson—670

Sinai, John J.
Electronic wavefunction for the ground state of methane, John J. Sinai—1575

Sitaram, P.
Gas-phase complexes in hydrogen chloride, D. H. Rank, P. Sitaram, W. A. Glickman, and T. A. Wiggins—2673

Slie, Warren M.
Effect of pressure and temperature on rotational isomeric relaxation in ethyl acetate, Warren M. Slie and Theodore A. Litovitz—1538

Smith, A. C. H.
Dissociative charge transfer in He^+–O_2 and He^+–N_2 collisions, R. F. Stebbings, A. C. H. Smith, and Helmut Ehrhardt—968

Smith, F. J.
External heavy-atom spin–orbital coupling effect. IV. Intersystem crossing, S. P. McGlynn, J. Daigre, and F. J. Smith—675

Smith, George W.
C^{13}–H and X–H coupling constants for compounds of the type $X(CH_3)_4$, George W. Smith—2031

Smyth, C. P.
Dielectric dispersion of a polar–nonpolar liquid mixture near the critical solution temperature, R. G. Quinn and C. P. Smyth—3285

Somorjai, G. A.
Evaporation mechanism and vapor composition, D. W. Jepsen and G. A. Somorjai—1665

Sonder, E.
Variation of coloration rates and luminescence in Harshaw potassium chloride, C. T. Butler, W. A. Sibley, and E. Sonder—242(L)

Srinivasan, R.
Photochemical formation of phenanthrene from *cis*-stilbene in the vapor phase, R. Srinivasan and John C. Powers, Jr.—580

Stafsudd, Oscar M.
Absorption and fluorescence spectra of several praseodymium-doped crystals and the change of covalence in the chemical bonds of the praseodymium ion, Eugene Y. Wong, Oscar M. Stafsudd, and David R. Johnston—786

Stanton, R. E.
Criterion for ordering the bond strengths of neutral and positively charged hydrides, R. E. Stanton—2368

Stauffer, James L.
Determination of the geometry of lithium oxide, $Li_2O(g)$, by electric deflection, Alfred Büchler, James L. Stauffer, William Klemperer, and Lennard Wharton—2299

Stebbings, R. F.
Dissociative charge transfer in He^+–O_2 and He^+–N_2 collisions, R. F. Stebbings, A. C. H. Smith, and Helmut Ehrhardt—968

Steele, Derek
Calculations of higher-order spectroscopic parameters using empirical potential functions, Joel M. Stutman, Ellis R. Lippincott, and Derek Steele—564

Steele, William A.
Statistical mechanics of nonspherical molecules, William A. Steele—3197

Steiner, Erich
Charge densities in atoms, Erich Steiner—2365

Stelman, David
Oscillators perturbed by Gaussian barriers, Sunney I. Chan and David Stelman—545

Stern, Marvin J.
Theoretical considerations on carbon isotope effects in the decarboxylation of malonic acid, Marvin J. Stern and Max Wolfsberg—2776(L)
Isotope effects on internal frequencies in the condensed phase resulting from interactions with the hindered translations and rotations. The vapor pressures of the isotopic ethylenes, Marvin J. Stern, W. Alexander Van Hook, and Max Wolfsberg—3179

Sternlicht, H.
Errata: Triplet–triplet annihilation and delayed fluorescence in molecular aggregates; errata and comments concerning ruby-laser-induced fluorescence in anthracene crystals, H. Sternlicht, G. C. Nieman, and G. W. Robinson [**38**, 1326 (1963)]—1610(L)

Stevenson, R. W. H.
Investigation of the bonding of iron-group ions in fluoride crystals. II. T. P. P. Hall, W. Hayes, R. W. H. Stevenson, and J. Wilkens—35

Stewart, Robert F.
Polarized absorption spectra of purines and pyrimidines, Robert F. Stewart and Norman Davidson—255

Stillinger, Frank H., Jr.
Statistical mechanical theory of double-layer structure and properties, Frank P. Buff and Frank H. Stillinger, Jr.—1911

Stockdale, J. A.
Time-of-flight investigations of electron transport in gases, G. S. Hurst, L. B. O'Kelly, E. B. Wagner, and J. A. Stockdale—1341

Stokes, Suzanne
Electronic spectral shifts of some aromatic compounds in nonpolar solvents, Suzanne Stokes—2309

Stone, Ellery W.
ESR study of polyazine anions, Ellery W. Stone and August H. Maki—1635

Stout, J. W.
Heat capacity of $MnBr_2$ between 1.7° and 20°K. Magnetic ordering in $MnBr_2$, Wayne B. Hadley and J. W. Stout—2205

Strand, T. G.
Modification to the Newton–Raphson method for the fitting of nonlinear functions by least squares, T. G. Strand, D. A. Kohl, and R. A. Bonham—1307
Analytical expressions for potentials of neutral Thomas–Fermi–Dirac atoms and for the corresponding atomic scattering factors for x rays and electrons, R. A. Bonham and T. G. Strand—2200

Strausz, O. P.
Electrophilic character of the Hg $6(^3P_1)$ atom and the mechanism of electronic energy transfer in mercury photosensitization, Yves Rousseau, O. P. Strausz, and H. E. Gunning—962

Strong, H. M.
Catalytic effects in the transformation graphite to diamond, H. M. Strong—2057

Stutman, Joel M.
Calculations of higher-order spectroscopic parameters using empirical potential functions, Joel M. Stutman, Ellis R. Lippincott, and Derek Steele—564

Subbarao, E. C.
X-ray and electrical conductivity study of the fluorite phase in the system ZrO_2–CaO, T. Y. Tien and E. C. Subbarao—1041

Sugimoto, Shun-ichi
Photoinduced change of organic free radicals as studied by ESR. I. Conversion of allyl-type to alkyl-type radicals in irradiated polyethylene, Shun-ichi Ohnishi, Shun-ichi Sugimoto, and Isamu Nitta—2647
Sullivan, John H.
Deuterium kinetic isotope effect in the hydrogen–iodine reaction, John H. Sullivan—3001
Suna, A.
Fermion behavior of one-dimensional excitons, D. B. Chesnut and A. Suna—146
Sundaram, S.
Erratum: Potential energy constants, rotational distortion constants, and thermodynamic properties of methylacetylenes, P. N. Daykin, S. Sundaram, and Forrest F. Cleveland [**37**, 1087 (1962)]—3156(L)
Sutcliffe, Brian T.
Hyperfine electron spin resonance spectrum of the NH_2 free radical, Brian T. Sutcliffe—3322
Suzuki, C. K.
Fluorescence of europium thenoyltrifluoroacetonate. I. Evaluation of laser threshold parameters, H. Winston, O. J. Marsh, C. K. Suzuki, and C. L. Telk—267
Observation of fluorescence in ketone solutions of europium and terbium salts, E. Matovich and C. K. Suzuki—1442
Swanson, Lynwood W.
Field desorption of carbon monoxide from tungsten, Lynwood W. Swanson and Robert Gomer—2813
Swanson, N.
Excitation of π electrons in polystyrene and similar polymers by 20-keV electrons, N. Swanson and C. J. Powell—630
Swenson, G. W.
One-electron photo-ionization of acridine dyes in rigid media: evidence for the formation of transient radical ion, E. C. Lim and G. W. Swenson—2768(L)
Sykes, M. F.
Self-avoiding walks on the simple cubic lattice, M. F. Sykes—410

Tai, Julia Chow
Nuclear relaxation in molecular liquids containing free radicals, H. S. Gutowsky and Julia Chow Tai—208
Takeyama, Tetsu
Rotational temperatures of OH radicals in shock waves, Hajime Miyama and Tetsu Takeyama—851(L)
Tanaka, Masahiro
Benzene photosensitized *cis-trans* isomerization of butene-2, Shin Sato, Kiyoaki Kikuchi, and Masahiro Tanaka—239(L)
Tanaka, Y.
Absorption coefficients of xenon and argon in the 600–1025 Å wavelength regions, R. E. Huffman, Y. Tanaka, and J. C. Larrabee—902
Absorption coefficients of nitrogen in the 1000–580 Å wavelength region, R. E. Huffman, Y. Tanaka, and J. C. Larrabee—910
Isotope bands and the vibration assignment of the $D^2\pi_g$–$A^2\pi_u$ system of N_2^+, T. Namioka, K. Yoshino, and Y. Tanaka—2629
600 Å band of helium, Y. Tanaka and K. Yoshino—3081
Tang, Helen
Viscosity and diffusion coefficients of gaseous sulfur hexafluoride–carbon tetrafluoride mixtures, C. J. G. Raw and Helen Tang—2616
Tanttila, W. H.
Magnetic resonance of Mn^{3+}-doped LiF crystals, T. T. Chang, W. H. Tanttila, and J. S. Wells—2453
Tao, S. J.
Annihilation rates and collision complex of positrons in freon-12, J. H. Green and S. J. Tao—3160(L)
Tavard, Claude
Calculation of x-ray and electron intensities scattered by the NH_3 and H_2O molecules, Claude Tavard, Marcel Rouault, Monique Roux, and Marguerite Cornille—2390(L)
Taylor, Ellison H.
Atom–molecule reaction of hydrogen studies by molecular beams, Sheldon Datz and Ellison H. Taylor—1896(L)
Taylor, Howard S.
Potential curve for the $^2\Sigma_u^+$ state of H_2^-, Howard S. Taylor and F. E. Harris—1012
Molecular orbital study of the $B\ ^1\Sigma_u^+$ and $^3\Sigma_u^+$ states of the hydrogen molecule, Howard S. Taylor—3375
Potential-energy curve of the lowest-lying triplet sigma state of lithium hydride, Howard S. Taylor—3382
Taylor, Raymond L.
Continuum infrared radiation from high-temperature air and nitrogen, Raymond L. Taylor—2354
Telk, C. L.
Fluorescence of europium thenoyltrifluoroacetonate. I. Evaluation of laser threshold parameters, H. Winston, O. J. Marsh, C. K. Suzuki, and C. L. Telk—267
Temkin, A.
Relative partial wave theory of diatomic molecules, A. Temkin—161
Templeton, David H.
Crystal structure of cerium magnesium nitrate hydrate, Allan Zalkin, J. D. Forrester, and David H. Templeton—2881
Comments on the orientation of the proton–proton vectors of water in Tutton's salts, David H. Templeton, Allan Zalkin, and T. N. Margulis—3155(L)
Theard, Lowell P.
Transpiration and mass spectrometric studies of equilibria involving BOF(g) and $(BOF)_3$(g), Donald L. Hildenbrand, Lowell P. Theard, and Albert M. Saul—1973
Thiele, Everett
Equation of state for hard spheres, Everett Thiele—474
Smooth curve approximation to the energy-level distribution for quantum harmonic oscillators, Everett Thiele—3258
Thomas, D. D.
Exciton magnetic resonance in Wurster's blue perchlorate, D. D. Thomas, H. Keller, and H. M. McConnell—2321
Thomas, J. E.
X-ray study of critical opalescence in argon, J. E. Thomas and Paul W. Schmidt—2506
Thomas, J. R.
Electron paramagnetic resonance of a hydrazine radical ion, J. Q. Adams and J. R. Thomas—1904(L)

Thorson, Walter R.
Nonadiabatic effects in the high-energy scattering of normal helium atoms, Walter R. Thorson—1431
Thyagarajan, G.
Absolute infrared intensity measurements in thin films. II. Solids deposited on halide plates, S. Maeda, G. Thyagarajan, and P. N. Schatz—3474
Tien, T. Y.
X-ray and electrical conductivity study of the fluorite phase in the system ZrO_2–CaO, T. Y. Tien and E. C. Subbarao—1041
Tiernan, Thomas O.
Dissociative charge-exchange reactions of rare-gas ions with propane, Jean H. Futrell and Thomas O. Tiernan—2539
Tietz, T.
Analytical method for the approximate determination of the eigenfunctions and energies of electrons in Thomas–Fermi atoms, T. Tietz—1908(L)
Note concerning the elastic scattering of low-energy electrons in Thomas–Fermi theory, T. Tietz and C. Malinowska—2778(L)
Tinsley, Beatrice M.
Analysis of the optical absorption spectrum of neodymium magnesium nitrate, Beatrice M. Tinsley—3503
Tipsword, R. F.
Temperature dependence of the pure quadrupole resonance frequency and spin-lattice relaxation time in $NaBrO_3$ at low temperatures, R. F. Tipsword and W. G. Moulton—2730
Tiwari, P.
Nuclear magnetic shielding constants and x-ray atomic scattering factors for two-, three-, and four-electron systems by means of analytic Hartree–Fock wavefunctions, M. L. Rustgi and P. Tiwari—2590
Todd, J. E.
Pure nuclear quadrupole resonances of several chlorinated cyclopropanes, J. E. Todd, M. A. Whitehead, and K. E. Weber—404
Torrey, M. D.
Some analytic solutions of the Hartree–Fock equations by an iterative least-squares method, A. L. Merts and M. D. Torrey—694
Treinin, Avner
Spectrum of N_3^- in solution, Itamar Burak and Avner Treinin—189
Dihalide ions trapped in glasses, Tova Feldmann and Avner Treinin—1352(L)
Trischka, J. W.
Relation between the constants in the Arrhenius equation for alkali ions desorbed in vacuum from contaminated metal surfaces, J. W. Trischka—1357(L)
Trivich, Dan
Thermoelectric effect in single-crystal cuprous oxide at high temperatures, Moshe H. Zirin and Dan Trivich—870
Trujillo, S. M.
Substantiation of a method for obtaining interatomic potential energy parameters, Erhard W. Rothe, R. H. Neynaber, Burton W. Scott, S. M. Trujillo, and P. K. Rol—493(L)
Tschoegl, N. W.
Influence of hydrodynamic interaction on the viscoelastic behavior of dilute polymer solutions, N. W. Tschoegl—149
Tschuikow-Roux, E.
Reaction between nitric oxide and ozone in a supersonic nozzle, J. E. Marte, E. Tschuikow-Roux, and H. W. Ford—3277
Tsou, K. C.
Fluorescence spectral study of wavelength shifters for scintillation plastics, Stanley R. Sandler and K. C. Tsou—1062
Tsuchida, Atsushi
"Bond-orbital" and "modified electron-pair" calculations on the ammonia molecule, Atsushi Tsuchida and Kimio Ohno—600
Tsuchiya, Toshikazu
Mass spectrometric study of positive-ion emission from iron oxide catalysts containing alkali metals, Toshikazu Tsuchiya—828
Turrell, George C.
On induced transitions and line shifts in the rotation–vibration spectra of pressurized diatomic gases, Ramesh D. Sharma and George C. Turrell—2638
Tweet, A. G.
Preparation and properties of monomolecular films of chlorophyll *a* and pheophytin *a*, W. D. Bellamy, G. L. Gaines, Jr., and A. G. Tweet—2528

Vaidhyanathan, V. S.
Theory of the single-ion heat of transport in nonisothermal electrolytic solutions, Richard J. Bearman and V. S. Vaidhyanathan—3411
Vala, Martin T., Jr.
Solvent effects and a test of the theory of hypochromism, Martin T. Vala, Jr., and Stuart A. Rice—2348
Vander Haar, R. W.
Effects of isotopic labeling and molecular structure on probability of ionization by electron impact, Seymour Meyerson, H. M. Grubb, and R. W. Vander Haar—1445
Vanderslice, Joseph T.
On the recalculation of the potential curves for the ground states of I_2 and H_2, Stanley Weissman, Joseph T. Vanderslice, and Rubin Battino—2226
Interaction energies and transport coefficients of Li+H and O+H gas mixtures at high temperatures, Paul H. Krupenie, Edward A. Mason, and Joseph T. Vanderslice—2399
Van Holde, K. E.
Role of hydrodynamic interaction in the diffusion of *n*-alkanes in carbon tetrachloride, P. K. Dewan and K. E. Van Holde—1820
Van Hook, W. Alexander
Isotope effects on internal frequencies in the condensed phase resulting from interactions with the hindered translations and rotations. The vapor pressures of the isotopic ethylenes, Marvin J. Stern, W. Alexander Van Hook, and Max Wolfsberg—3179
Varma, Ravi
Electric dipole moment of trisilylamine, Ravi Varma, Alan G. MacDiarmid, and John G. Miller—3157(L)

Vaughan, Worth E.
Dielectric relaxation of some aromatic molecules containing methoxy groups, W. E. Vaughan, S. B. W. Roeder, and T. Provder—701
Dispersion in ethanol and methanol at 2.1-mm wavelength, Worth E. Vaughan and Byron Kratochvil—1617(L)
Veigele, Wm. J.
Ga^{71} quadrupole interaction in α-Ga_2O_3 powder, Wm. J. Veigele—2389(L)
Veksli, Z.
Anisotropy of the fluorine chemical shift tensor in xenon tetrafluoride, R. Blinc, I. Zupančič, S. Maričič, and Z. Veksli—2109(L)
Verber, Carl M.
Two-photon excitation of phosphorescence and fluorescence, Albert H. Adelman and Carl M. Verber—931
Verderame, Frank D.
Infrared spectrum and dipole–dipole coupling in crystalline cyanogen, Frank D. Verderame, John W. Nebgen, and Eugene R. Nixon—2274
Vickers, G. D.
Homonuclear decoupling: P^{31}–P^{31}, H. Agahigian, G. D. Vickers, J. Roscoe, and J. Bishop—1621(L)
Vincent, James S.
Paramagnetic resonance measurements of the phosphorescent state of quinoxaline, James S. Vincent and August H. Maki—3088
Vincow, Gershon
Second moments of electron spin resonance proton hyperfine spectra, Gershon Vincow and Philip M. Johnson—1143
Vollmar, P. M.
Ionic interactions in aqueous solution: a Raman spectral study, P. M. Vollmar—2236
Volpi, G. G.
Ion–molecule reactions leading to NO^+ formation, A. Galli, A. Giardini-Guidoni, and G. G. Volpi—518
Ion-molecule reactions in gaseous ammonia, G. A. W. Derwish, A. Galli, A. Giardini-Guidoni, and G. G. Volpi—1599
von Goeler, E.
Radiotracer measurement of the desorption energy of silver from molybdenum and nickel, E. von Goeler and R. N. Peacock—169

Wagner, E. B.
Time-of-flight investigations of electron transport in gases, G. S. Hurst, L. B. O'Kelly, E. B. Wagner, and J. A. Stockdale—1341
Wagnière, G.
On the evaluation of some dipole velocity integrals, G. Wagnière and H. Labhart—2386(L)
Wahl, A. C.
Erratum: Nuclear magnetic resonance studies of electron transfer between tris(2,2′-dipyridyl)osmium(II) and (III) ions, between bis(cyclopentadienyl)iron(II) and (III) ion, and between tris(1,10-phenanthroline)iron (II) and (III) ions, M. W. Dietrich and A. C. Wahl [**38,** 1591 (1963)]—2376(L)
Wait, S. C.
Raman spectrum and vibrational assignment for molten thallous nitrate, G. J. Janz, T. R. Kozlowski, and S. C. Wait—1809
Waldorf, D. M.
Vapor-phase equilibrium of NO, NO_2, H_2O, and HNO_2, D. M. Waldorf and A. L. Babb—432
Walker, William W.
Positronium decay in cholesteryl acetate, George D. Cole and William W. Walker—850(L)
Wall, Frederick T.
Erratum: Monte Carlo study of coiling molecules. II, F. T. Wall, S. Windwer, and P. J. Gans [**38,** 2228 (1963)]—1900(L)
Sensitivity of exchange-reaction probabilities to the potential-energy surface, Frederick T. Wall and Richard N. Porter—3112
Wallace, W. E.
Magnetic characteristics of dysprosium, erbium, and thulium hydrides, Yoshio Kubota and W. E. Wallace—1285
Magnetic characteristics of Tb–Y and Ho–Y solid solutions, Sidney Weinstein, R. S. Craig, and W. E. Wallace—1449
Walrafen, G. E.
Raman spectral studies of aqueous solutions of selenic acid, G. E. Walrafen—1479
Walsh, W. M., Jr.
Electron spin resonance of irradiated DNA, R. Salovey, R. G. Shulman, and W. M. Walsh, Jr.—839(L)
Walton, A. G.
Surface energy of small ionic crystals, A. G. Walton—3162(L)
Ward, Raymond L.
Photoinduced free-radical ion formation from some charge transfer complexes, Raymond L. Ward—852(L)
Isotropic NMR shifts in pyridine-type bases complexed with paramagnetic Ni^{II} and Co^{II} acetylacetonates, James A. Happe and Raymond L. Ward—1211
Ware, William R.
Viscosity dependence of the first-order decay of the triplet state of anthracene and related molecules, Robert Livingston and William R. Ware—2593
Watson, W. W.
Isotopic thermal-diffusion factor of argon, R. Paul, A. J. Howard, and W. W. Watson—3053
Watts, John C.
Effective depth of formation of x-ray line radiation, Sema'an I. Salem and John C. Watts—2259
Wayne, R. C.
ESR measurement of spin susceptibility of graphite in a low magnetic field, R. C. Wayne and R. M. Cotts—1337
Weber, K. E.
Pure nuclear quadrupole resonances of several chlorinated cyclopropanes, J. E. Todd, M. A. Whitehead, and K. E. Weber—404
Wei, Ling Y.
Electrical conductivity of potassium films on potassium chloride, Ling Y. Wei—2709
Weinberg, I.
g-factor and Knight shift in *p*-type lead telluride, I. Weinberg—492(L)

Weiner, E. R.
Cross sections for some gas-phase single-charge-transfer reactions of N_2^{++} and Ar^{++}, E. R. Weiner, G. R. Hertel, and W. S. Koski—3538(L)
Weinstein, Sidney
Magnetic characteristics of Tb–Y and Ho–Y solid solutions, Sidney Weinstein, R. S. Craig, and W. E. Wallace—1449
Weiss, A. W.
Calculations of the hyperfine splitting for the lithium atom, J. B. Martin and A. W. Weiss—1618(L)
Weiss, George
Statistics of irreversible termination in homogeneous anionic polymerization, Bernard D. Coleman, Fred Gornick, and George Weiss—3233
Weissman, Stanley
On the recalculation of the potential curves for the ground states of I_2 and H_2, Stanley Weissman, Joseph T. Vanderslice, and Rubin Battino—2226
Weisz, S. Z.
Relative contributions of singlet–singlet and singlet–triplet interactions to the photogeneration of carriers of anthracene, M. Silver, S. Z. Weisz, J. S. Kim, and R. C. Jarnagin—3163(L)
Wells, J. S.
Magnetic resonance of Mn^{2+}-doped LiF crystals, T. T. Chang, W. H. Tanttila, and J. S. Wells—2453
Wen, Wen-Yang
Delayed fluorescence and possible one-electron photoionization of dyes in rigid media, E. C. Lim and Wen-Yang Wen—847(L)
Wettermark, Gunnar
General acid catalysis of the fading of photoisomerized 2,4-dinitrotoluene, Gunnar Wettermark and Robert Ricci—1218
Wharton, Lennard
Erratum: Electric resonance spectrum and dipole moment of BaO, L. Wharton, M. Kaufman, and W. Klemperer [37, 622 (1962)]—240(L)
Rotational dependency of the Stark effect of a polar diatomic molecule, L. Wharton and W. Klemperer—1881
Geometry of the alkaline-earth dihalides, L. Wharton, R. A. Berg, and W. Klemperer—2023
Determination of the geometry of lithium oxide, $Li_2O(g)$, by electric deflection, Alfred Büchler, James L. Stauffer, William Klemperer, and Lennard Wharton—2299
White, David
Infrared spectra, and the structures and thermodynamics of gaseous LiO, Li_2O, and Li_2O_2, David White, K. S. Seshadri, D. F. Dever, D. E. Mann, and M. J. Linevsky—2463
White, Donald R.
Vibrational energy exchange between N_2 and CO. The vibrational relaxation of nitrogen, Roger C. Millikan and Donald R. White—98
Vibrational relaxation of oxygen, Donald R. White and Roger C. Millikan—1803
Oxygen vibrational relaxation in O_2–He and O_2–Ar mixtures, Donald R. White and Roger C. Millikan—1807
Oxygen vibrational relaxation in O_2–H_2 mixtures, Donald R. White and Roger C. Millikan—2107(L)
Systematics of vibrational relaxation, Roger C. Millikan and Donald R. White—3209
Whitehead, M. A.
Pure nuclear quadrupole resonances of several chlorinated cyclopropanes, J. E. Todd, M. A. Whitehead, and K. E. Weber—404
Whitmore, D. H.
Thermoelectric power in nonstoichiometric α-Nb_2O_5, R. F. Jannick and D. H. Whitmore—179
Whitten, Jerry L.
Gaussian expansion of hydrogen-atom wavefunctions, Jerry L. Whitten—349
Widom, B.
Some topics in the theory of fluids, B. Widom—2808
Wieder, H.
Magnetic susceptibility of partially oxidized copper films at 25°C, A. W. Czanderna and H. Wieder—489(L)
Wiersema, A. K.
Electron paramagnetic resonance of naturally abundant N^{15} and S^{33} in peroxylamine disulfonate ion $[NO(SO_3)_2]^=$, J. J. Windle and A. K. Wiersema—1139(L)
Wiggins, T. A.
Collision narrowing of spectral lines. H_2 quadrupole spectrum, D. H. Rank and T. A. Wiggins—1348(L)
Gas-phase complexes in hydrogen chloride, D. H. Rank, P. Sitaram, W. A. Glickman, and T. A. Wiggins—2673
Wilkens, J.
Investigation of the bonding of iron-group ions in fluoride crystals. II, T. P. P. Hall, W. Hayes, R. W. H. Stevenson, and J. Wilkens—35
Wilkins, David J.
Effect of radio-frequency fields on the electrophoretic mobility of some colloids, David J. Wilkins and John H. Heller—3401
Wilkinson, Francis
Energy-transfer studies by spectrophotofluorometric method, Francis Wilkinson and Jean T. Dubois—377
Radiative lifetime of triplet biacetyl, Jean T. Dubois and Francis Wilkinson—899
Williams, H. J.
Antiferromagnetic and crystal structure of lithium cupric chloride dihydrate, S. C. Abrahams and H. J. Williams—2923
Williams, Richard
Domains in liquid crystals, Richard Williams—384
Fluorescence of naphthacene vapor, R. Williams and G. J. Goldsmith—2008
Wilmshurst, J. K.
Infrared spectra of highly associated liquids and the question of complex ions in fused salts, J. K. Wilmshurst—1779
Infrared spectra of molten salts, J. K. Wilmshurst—2545
Wilson, E. Bright, Jr.
Microwave spectrum, structure, and dipole moment of "*cis*"-N_2F_2, Robert L. Kuczkowski and E. Bright Wilson, Jr.—1030
Wilson, M. K.
Infrared spectra of the germyl halides, D. E. Freeman, K. H. Rhee, and M. K. Wilson—2908
Windle, J. J.
Electron paramagnetic resonance of naturally abundant N^{15} and S^{33} in peroxylamine disulfonate ion $[NO(SO_3)_2]^=$, J. J. Windle and A. K. Wiersema—1139(L)

Windsor, Maurice W.
Enhancement of fluorescence yield of rare-earth ions by heavy water, John L. Kropp and Maurice W. Windsor—2769(L)
Windwer, S.
Erratum: Monte Carlo study of coiling molecules. II, F. T. Wall, S. Windwer, and P. J. Gans [**38**, 2228 (1963)]—1900(L)
Winnewisser, Manfred
Millimeter wave spectroscopy of unstable molecular species. I. Carbon monosulfide, Roger Kewley, K. V. L. N. Sastry, Manfred Winnewisser, and Walter Gordy—2856
Winston, H.
Fluorescence of europium thenoyltrifluoroacetonate. I. Evaluation of laser threshold parameters, H. Winston, O. J. Marsh, C. K. Suzuki, and C. L. Telk—267
Wise, Henry
Diffusion and heterogeneous reaction. V. Transition from a surface- to a diffusion-controlled process during atom recombination, Henry Wise, Clarence M. Ablow, and Dan J. Schott—2063
Woessner, D. E.
Nuclear pure quadrupole relaxation and its temperature dependence in solids, D. E. Woessner and H. S. Gutowsky—440
Temperature dependences of nuclear-transfer and spin-relaxation phenomena of water adsorbed on silica gel, D. E. Woessner—2783
Wolfgang, Richard
Kinetic theory of hot atom reactions. II. Evaluation of collisional energy loss. Application to reactive mixtures, Richard Wolfgang— 2983
Wolfsberg, Max
Theoretical considerations on carbon isotope effects in the decarboxylation of malonic acid, Marvin J. Stern and Max Wolfsberg—2776(L)
Isotope effects on internal frequencies in the condensed phase resulting from interactions with the hindered translations and rotations. The vapor pressures of the isotopic ethylenes, Marvin J. Stern, W. Alexander Van Hook, and Max Wolfsberg—3179
Wong, Edgar L.
Reaction rates of hydrogen, ammonia, and methane with mixtures of atomic and molecular oxygen, Edgar L. Wong and A. E. Potter, Jr.—2211
Wong, Eugene Y.
Absorption and fluorescence spectra of several praseodymium-doped crystals and the change of covalence in the chemical bonds of the praseodymium ion, Eugene Y. Wong, Oscar M. Stafsudd, and David R. Johnston—786
Lattice vibrations and specific heats of several rare-earth ethylsulfates, Eugene Y. Wong and Edward H. Erath—1629
Lattice vibrations of $LaCl_3$ and $LaBr_3$ from vibronic spectra, Isaac Richman, Robert A. Satten, and Eugene Y. Wong—1833
Absorption spectra of $Er(C_2H_5SO_4)_3 \cdot 9H_2O$ and $Yb(C_2H_5SO_4)_3 \cdot 9H_2O$, Eugene Y. Wong—2781(L)
Wood, D. L.
Crystal-field spectra of d^3, d^7 ions. II. $KCoF_3$, $CoCl_2$, $CoBr_2$, and $CoWO_4$, J. Ferguson, D. L. Wood, and K. Knox—881
Crystal-field spectra of $d^{3,7}$ ions. III.Spectrum of Cr^{3+} in various octahedral crystal fields, D. L. Wood, J. Ferguson, K. Knox, and J. F. Dillon, Jr.—890
Energy levels of Yb^{3+} in garnets, D. L. Wood—1671
Optical absorption of magnetic domains in NiF_2, J. Ferguson, H. J. Guggenheim, and D. L. Wood—3149(L)
Woods, H. P.
Emission and absorption spectra of OF_2–NO diffusion flame, P. L. Goodfriend and H. P. Woods—2379(L)
Wu, Ellen
Adaptation of the Urey–Bradley force field to NH_3, PH_3, SbH_3, and AsH_3, Marian Pariseau, Ellen Wu, and John Overend—217
Wulff, Claus A.
Determination of barrier heights from low-temperature heat-capacity data, Claus A. Wulff—1227
Wybourne, B. G.
Erratum: Nuclear moments and intermediate coupling, B. G. Wybourne [**37**, 1807 (1962)]—240(L)

Yamazaki, H.
Collisional deactivation of the excited states of oxygen atoms, H. Yamazaki and R. C. Cvetanović—1902(L)
Yaris, Robert
Perturbation theory and the Hellmann–Feynman theorem, Robert Yaris—863
Time-dependent perturbation–variation method, Robert Yaris—2474
Yoshino, K.
Isotope bands and the vibration assignment of the $D^2\pi_g$–$A^2\pi_u$ system of N_2^+, T. Namioka, K. Yoshino, and Y. Tanaka—2629
600 Å band of helium, Y. Tanaka and K. Yoshino—3081
Yosim, S. J.
Calculation of heats of vaporization and fusion of nonionic liquids from the rigid-sphere equation of state, S. J. Yosim and B. B. Owens—2222
Conformal ionic mixtures, Milton Blander and S. J. Yosim—2610
Young, Robert A.
Chemiluminescent reactions involving atomic oxygen and nitrogen, Robert A. Young and Robert L. Sharpless—1071
Chemi-ionization in atomic O and N mixtures, Carole R. Gatz, Robert A. Young, and Robert L. Sharpless—1234
Young, T. F.
Raman study of zinc chloride solutions, D. E. Irish, Bruce McCarroll, and T. F. Young—3436
Yun, K. S.
Formal kinetic theory of transport phenomena in polyatomic gas mixtures, L. Monchick, K. S. Yun, and E. A. Mason—654

Zalkin, Allan
Crystal structure of cerium magnesium nitrate hydrate, Allan Zalkin, J. D. Forrester, and David H. Templeton—2881
Comments on the orientation of the proton–proton vectors of water in Tutton's salts, David H. Templeton, Allan Zalkin, and T. N. Margulis—3155(L)

Zandstra, P. J.
Electron spin resonance of some arylsulfenyl radicals, P. J. Zandstra and J. D. Michaelsen—933
Zimmerman, J. M.
Polymerization kinetics of biological macromolecules on templates, Robert Simha, J. M. Zimmerman, and J. Moacanin—1239
Zinman, Walter G.
Comments on temperature measurements in hydrogen–oxygen detonations, Walter G. Zinman—3534(L)
Zipf, Edward C., Jr.
Erratum: Measurement of the diffusion coefficient and radiative lifetime of nitrogen molecules in the $A^3\Sigma_u^+$ state, Edward C. Zipf, Jr. [**38**, 2034 (1963)]—3534(L)
Zirin, Moshe H.
Thermoelectric effect in single-crystal cuprous oxide at high temperatures, Moshe H. Zirin and Dan Trivich—870
Zollweg, R. J.
Thermal conductivity of alkali-metal vapors, M. Gottlieb and R. J. Zollweg—2773(L)
Zupančič, I.
Anisotropy of the fluorine chemical shift tensor in xenon tetrafluoride, R. Blinc, I. Zupančič, S. Maričič, and Z. Veksli—2109(L)
Zwanzig, Robert
First-order phase transition in a gas of long thin rods, Robert Zwanzig—1714
Two assumptions in the theory of attractive forces between long saturated chains, Robert Zwanzig—2251
Zwicker, E. F.
Primary mechanisms in eosin-photosensitized reactions of aromatic amino acids and ovalbumin, L. I. Grossweiner and E. F. Zwicker—2774(L)

Analytic Subject Index to Volume 39

References with (L) are to Letters to the Editor. Items are listed under the following categories.

Absorption Spectra, Infrared
Absorption Spectra, Microwave
Absorption Spectra, of Crystals
Absorption Spectra, Visible or Ultraviolet
Accommodation Coefficients
Announcements
Apparatus and Methods
Beams, Atomic and Molecular
Catalysis
Centrifugation
Combustion
Conductance
Crystal Growth
Crystal Structure
Crystalline State
Detonation
Dielectrics
Diffusion
Dipole Moment
Effusion
Elasticity
Electrical Properties
Electrochemistry
Electron Affinity
Electron Diffraction
Electron Microscopy
Electrophoresis
Emission Spectra
Energy Transfer
Equation of State
Errata
Faraday Effect
Field-Emission Microscopy
Flames
Fluorescence
Free Radicals
Gases
Glasses
High Pressures
Intensities of Spectra
Isotope Effects
Isotopes
Kinetics of Reaction
Light Scattering
Liquids
Magnetic Cooling
Magnetic Resonance
Magnetic Susceptibilities
Mass Spectra
Mechanics, Classical
Mechanics, Quantum
Mechanics, Statistical
Metals
Molecular Interactions
Molecular Structure and Constants
Neutron Diffraction
Nuclear Quadrupole Resonance
Nucleation
Optical Activity
Phase Transitions
Phosphors
Photochemistry
Photoconductivity
Photo-ionization
Polymers
Proteins
Radiation Chemistry
Radiochemistry
Raman Spectra
Refractive Indexes
Rotation
Scattering
Secondary Electron Emission
Sedimentation
Semiconductors
Shock Waves
Solutions
Sputtering
Surface Phenomena
Thermal Conductivity
Thermal Diffusion
Thermionic Emission
Thermodynamic Properties
Thermodynamics
Thermoluminescence
Transport Phenomena
Turbidity
Ultrasonics
Valence and Chemical Bond
Viscosity
X-Ray Diffraction

Absorption Spectra, Infrared

Absolute infrared intensities in some crystalline hydrogen halides, H. Bruce Friedrich and Willis B. Person—811

Absolute infrared intensity measurements in thin films. II. Solids deposited on halide plates, S. Maeda, G. Thyagarajan, and P. N. Schatz—3474

Absorption and emission spectrum of $CaF_2:U^{3+}$ from 2.1 to 2.5 microns, Robert E. Meredith and Joe A. Jenney—3127

Applications of attenuated-total-reflection spectroscopy to absolute intensity measurements, Philip A. Flournoy—3156(L)

Erratum: Infrared intensities of silane, Ira W. Levin and W. T. King [**37**, 1375 (1962)]—241(L)

Far-infrared spectrum and barrier to internal rotation of ethyl fluoride, Gloria Sage and William Klemperer—371

Gas-phase complexes in hydrogen chloride, D. H. Rank, P. Sitaram, W. A. Glickman, and T. A. Wiggins—2673

Gaseous metaborates. II. Infrared spectra of alkali metaborate vapors, Alfred Büchler and Edward P. Marram—292

Transfer of triplet excitation energy in benzophenone crystals, Robin M. Hochstrasser—3153(L)

Infrared absorption intensities in mixed crystals of benzene and deuterobenzene, J. Leland Hollenberg and David A. Dows—495

Infrared optical properties of cuprous oxide, Michael O'Keeffe—1789

Infrared spectra, and the structures and thermodynamics of gaseous LiO, Li_2O, and Li_3O_3, David White, K. S. Seshadri, D. F. Dever, D. E. Mann, and M. J. Linevsky—2463

Infrared spectra in polarized light and vibrational assignment of the infrared-active modes of pyrene and pyrene-d_{10}, S. Califano and G. Abbondanza—1016

Infrared spectra in polarized light of acenaphthene crystals and assignment of molecular vibrations, L. Colombo—1942

Infrared spectra of highly associated liquids and the question of complex ions in fused salts, J. K. Wilmshurst—1779

Infrared spectra of metal chelate compounds. IX. A normal coordinate analysis of dithiocarbamato complexes, Kazuo Nakamoto, Junnosuke Fujita, Robert A. Condrate, and Yukiyoshi Morimoto—423

Infrared spectra of molten salts, J. K. Wilmshurst—2545

Infrared spectra of the germyl halides, D. E. Freeman, K. H. Rhee, and M. K. Wilson—2908

Infrared spectroscopic evidence for the species HNC, Dolphus E. Milligan and Marilyn E. Jacox—712

Infrared spectrum and dipole–dipole coupling in crystalline cyanogen, Frank D. Verderame, John W. Nebgen, and Eugene R. Nixon—2274

Measurement of infrared band contours in solution, Stanley Abramowitz and Robert P. Bauman—2757

Molecular motion and the moment analysis of molecular spectra in condensed phases. I. Dipole-allowed spectra, R. G. Gordon—2788

Molecular rotation and *ortho-para* nuclear spin conversion of water suspended in solid Ar, Kr, and Xe, Richard L. Redington and Dolphus E. Milligan—1276

Molecular rotation in the solid state. Theory of rotation of trapped molecules in rare-gas lattices, W. H. Flygare—2263

Near-infrared studies of the structure of water. I. Pure water, K. Buijs and G. R. Choppin—2035
Near-infrared studies of the structure of water. II. Ionic solutions, G. R. Choppin and K. Buijs—2042
Near-ultraviolet, visible, and infrared spectra of molten KSCN and NaSCN, Jacob Greenberg—3158(L)
Normal vibrations, potential constants, and vibration-rotation interaction constants in cyclobutane and cyclobutane-d_8, R. C. Lord and I. Nakagawa—2951
ν_3 vibration of methane in condensed oxygen, nitrogen, and argon, Stanley Abramowitz and H. P. Broida—2383(L)
On induced transitions and line shifts in the rotation-vibration spectra of pressurized diatomic gases, Ramesh D. Sharma and George C. Turrell—2638
Overtone frequency and double excitation in the hydrogen chloride crystal, A. Ron and D. F. Hornig—1129(L)
P–R maxima separations in unresolved parallel bands of symmetric- and slightly asymmetric-top molecules, Theodore D. Goldfarb—2860
Pressure-induced shifts of molecular lines in emission and in absorption, J. H. Jaffe, H. Friedmann, M. A. Hirshfeld, and A. Ben-Reuven—1447
Simultaneous measurement of HI fundamental and overtone lines, William Benesch—1048
Spectra of matrix-isolated water in the "pure rotation" region, Dean W. Robinson—3430
Tables for the analysis of rotational spectra containing centrifugal distortion and torsional splitting, Helmut Dreizler and Rainer Peter—1132(L)
Vanadium tetrachloride vibrational spectrum, Eugene L. Grubb and R. Linn Belford—244(L)
Vibration-rotation spectra of CH_4 and CD_4 impurities in xenon, krypton, and argon crystals, A. Cabana, G. B. Savitsky, and D. F. Hornig—2942
Vibration-rotation spectrum of the perpendicular bending modes of CH_2N_2, C. Bradley Moore—1884
Vibrational spectra and the inversion phenomenon in cyanamide and deuterated cyanamide, William H. Fletcher and Farrell B. Brown—2478
Vibrational spectra of molten mercuric halides. III. Mercuric chloride-thallous nitrate mixtures, George J. Janz and Theodore R. Kozlowski—843(L)

Absorption Spectra, Microwave

Microwave spectrum and structure of pentafluorosulfur bromide, Erwin W. Neuvar and Albert W. Jache—596
Microwave spectrum, molecular structure, and dipole moment of dimethylphosphine, Richard Nelson—2382(L)
Microwave spectrum of methyl isocyanate, R. F. Curl, Jr., V. M. Rao, K. V. L. N. Sastry, and Jimmie A. Hodgeson—3335
Microwave spectrum of normal propyl chloride, T. N. Sarachman—469
Microwave spectrum, quadrupolar coupling constants, and dipole moment of chlorobenzene, Robert L. Poynter—1962
Microwave spectrum, structure, and dipole moment of "*cis*"-N_2F_2, Robert L. Kuczkowski and E. Bright Wilson, Jr.—1030
Microwave spectrum, structure, and dipole moment of silyl acetylene, John S. Muenter and Victor W. Laurie—1181
Millimeter wave spectroscopy of unstable molecular species. I. Carbon monosulfide, Roger Kewley, K. V. L. N. Sastry, Manfred Winnewisser, and Walter Gordy—2856
Quadrupole coupling constants from the microwave spectrum of hydrazoic acid, Richard A. Forman and David R. Lide, Jr.—1133(L)
Rotational transitions and centrifugal distortion in the uhf spectrum of formaldehyde, Leon Esterowitz—247(L)
Structure of isobutylene, LeRoy H. Scharpen and Victor W. Laurie—1732

Absorption Spectra, of Crystals

Absolute infrared intensities in some crystalline hydrogen halides, H. Bruce Friedrich and Willis B. Person—811
Absorption and emission spectrum of $CaF_2:U^{3+}$ from 2.1 to 2.5 microns, Robert E. Meredith and Joe A. Jenney—3127
Absorption and fluorescence spectra of $Er^{3+}(4f^{11})$ in LaF_3, William F. Krupke and John B. Gruber—1024
Absorption and fluorescence spectra of several praseodymium-doped crystals and the change of covalence in the chemical bonds of the praseodymium ion, Eugene Y. Wong, Oscar M. Stafsudd, and David R. Johnston—786
Absorption spectra of $Er(C_2H_5SO_4)_3 \cdot 9H_2O$ and $Yb(C_2H_5SO_4)_3 \cdot 9H_2O$, Eugene Y. Wong—2781(L)
Analysis of the electronic spectra of neodymium ethylsulfate, John B. Gruber and Robert A. Satten—1455
Analysis of the optical absorption spectrum of neodymium magnesium nitrate, Beatrice M. Tinsley—3503
Analysis of the spectrum of d^3 ions in trigonal crystal fields, R. M. Macfarlane—3118
Combination of the lattice modes with the internal modes in a crystal, S. S. Mitra—3031
Crystal-field spectra of $d^{3,7}$ ions. I. Electronic absorption spectrum of $CoCl_4^=$ in three crystalline environments, J. Ferguson—116
Crystal-field spectra of d^3, d^7 ions. II. $KCoF_3$, $CoCl_2$, $CoBr_2$, and $CoWO_4$, J. Ferguson, D. L. Wood, and K. Knox—881
Crystal-field spectra of $d^{3,7}$ ions. III. Spectrum of Cr^{3+} in various octahedral crystal fields, D. L. Wood, J. Ferguson, K. Knox, and J. F. Dillon, Jr.—890
Do the "ligand field" parameters in lanthanides represent weak covalent bonding? Chr. Klixbüll Jørgensen, Romano Pappalardo, and Hans-Herbert Schmidtke—1422
Energy levels of Yb^{3+} in garnets, D. L. Wood—1671
Erratum and further comments: Vibrational excitons. II. Degenerate vibrations, R. M. Hexter [**36**, 2285 (1962)]—1608(L)
Fluorescence of europium thenoyltrifluoroacetonate. I. Evaluation of laser threshold parameters, H. Winston, O. J. Marsh, C. K. Suzuki, and C. L. Telk—267
Indirect observation of singlet-triplet absorption in anthracene crystals, P. Avakian, E. Abramson, R. G. Kepler, and J. C. Caris—1127(L)
Infrared absorption intensities in mixed crystals of benzene and deuterobenzene, J. Leland Hollenberg and David A. Dows—495
Infrared spectra in polarized light and vibrational assignment of the infrared-active modes of pyrene and pyrene-d_{10}, S. Califano and G. Abbondanza—1016
Infrared spectra in polarized light of acenaphthene crystals and assignment of molecular vibrations, L. Colombo—1942
Infrared spectra of HF-DF mixed crystals and the structure of hydrogen fluoride, M. L. N. Sastri and D. F. Hornig—3497
Infrared spectrum and dipole-dipole coupling in crystalline cyanogen, Frank D. Verderame, John W. Nebgen, and Eugene R. Nixon—2274

Lattice vibrations and specific heats of several rare-earth ethylsulfates, Eugene Y. Wong and Edward H. Erath—1629
Lattice vibrations of $LaCl_3$ and $LaBr_3$ from vibronic spectra, Isaac Richman, Robert A. Satten, and Eugene Y. Wong—1833
On the nature of the visible charge-transfer band of $K_3Fe(CN)_6$, Charles S. Naiman—1900(L)
Optical absorption of magnetic domains in NiF_2, J. Ferguson, H. J. Guggenheim, and D. L. Wood—3149(L)
Optical reflection spectra of chromia–alumina, Charles P. Poole, Jr., and John F. Itzel, Jr.—3445
Optical spectra of exchange coupled Mn^{++} ion pairs in ZnS:MnS, Donald S. McClure—2850
Optical studies of anisotropic color centers in germanium-doped quartz, A. Halperin and J. E. Ralph—63
Overtone frequency and double excitation in the hydrogen chloride crystal, A. Ron and D. F. Hornig—1129(L)
Polarization of the triplet–triplet absorption spectrum of some polyacenes by the method of photoselection, M. A. El-Sayed and T. Pavlopoulos—834
Polarized absorption spectra of purines and pyrimidines, Robert F. Stewart and Norman Davidson—255
Spectrum of Nd^{3+} in $LaCl_3$, J. C. Eisenstein—2134
Survey of the spectra of the divalent rare-earth ions in cubic crystals, Donald S. McClure and Zoltan Kiss—3251

Absorption Spectra, Visible or Ultraviolet

Absorption and fluorescence spectra of $Er^{3+}(4f^{11})$ in LaF_3, William F. Krupke and John B. Gruber—1024
Absorption and fluorescence spectra of several praseodymium-doped crystals and the change of covalence in the chemical bonds of the praseodymium ion, Eugene Y. Wong, Oscar M. Stafsudd, and David R. Johnston—786
Absorption coefficients of nitrogen in the 1000–580 Å wavelength region, R. E. Huffman, Y. Tanaka, and J. C. Larrabee—910
Absorption coefficients of xenon and argon in the 600–1025 Å wavelength regions, R. E. Huffman, Y. Tanaka, and J. C. Larrabee—902
Absorption spectra of $Er(C_2H_5SO_4)_3 \cdot 9H_2O$ and $Yb(C_2H_5SO_4)_3 \cdot 9H_2O$, Eugene Y. Wong—2781(L)
Absorption spectra of polyatomic molecules at high temperatures. II. Benzene and perfluorobenzene. Kinetics of the pyrolysis of benzene, S. N. Bauer and C. F. Aten—1253
Absorption spectrum of Cs in the presence of isomeric hydrocarbons, Oleg Jefimenko and Reginald J. Exton—229
Analysis of the electronic spectra of neodymium ethylsulfate, John B. Gruber and Robert A. Satten—1455
Analysis of the optical absorption spectrum of neodymium magnesium nitrate, Beatrice M. Tinsley—3503
Analysis of the spectrum of d^3 ions in trigonal crystal fields, R. M. Macfarlane—3118
Collision narrowing of spectral lines. H_2 quadrupole spectrum, D. H. Rank and T. A. Wiggins—1348(L)
Correlation between Stokes shift and stability constant of 6,7-dihydroxynaphthalene-2-sulfonic acid metal chelates, Naoya Ono and Kazushi Hirota—1907(L)
Correlations among electronic transitions for carbonyl and for carboxyl in the vacuum ultraviolet, Edwin E. Barns and William T. Simpson—670
Crystal-field spectra of $d^{2,7}$ ions. I. Electronic absorption spectrum of $CoCl_4^=$ in three crystalline environments, J. Ferguson—116
Crystal-field spectra of d^3, d^7 ions. II. $KCoF_3$, $CoCl_2$, $CoBr_2$, and $CoWO_4$, J. Ferguson, D. L. Wood, and K. Knox—881
Crystal-field spectra of $d^{2,7}$ ions. III. Spectrum of Cr^{3+} in various octahedral crystal fields, D. L. Wood, J. Ferguson, K. Knox, and J. F. Dillon, Jr.—890
Dihalide ions trapped in glasses, Tova Feldmann and Avner Treinin—1352(L)
Electronic spectral shifts of some aromatic compounds in nonpolar solvents, Suzanne Stokes—2309
Emission and absorption spectra of OF_2–NO diffusion flame, P. L. Goodfriend and H. P. Woods—2379(L)
Energy levels of Yb^{3+} in garnets, D. L. Wood—1671
Erratum: Nuclear moments and intermediate coupling, B. G. Wybourne [**37**, 1807 (1962)]—240(L)
Excitation mechanism for the nitrogen pink afterglow, A. B. Prag and K. C. Clark—799
Experimental oscillator strength of OH, $^2\Sigma^+ \rightarrow {}^2\pi$, by a chemical method, D. M. Golden, F. P. Del Greco, and F. Kaufman—3034
Fluorescence of europium thenoyltrifluoroacetonate. I. Evaluation of laser threshold parameters, H. Winston, O. J. Marsh, C. K. Suzuki, and C. L. Telk—267
Fluorescence of naphthacene vapor, R. Williams and G. J. Goldsmith—2008
Isotope bands and the vibration assignment of the $D^2\pi_g$–$A^2\pi_u$ system of N_2^+, T. Namioka, K. Yoshino, and Y. Tanaka—2629
Isotopic shifts in some ultraviolet systems of N_2, P. K. Carroll and D. Mahon-Smith—237(L)
Molecular motion and the moment analysis of molecular spectra in condensed phases. I. Dipole-allowed spectra, R. G. Gordon—2788
Near-ultraviolet, visible, and infrared spectra of molten KSCN and NaSCN, Jacob Greenberg—3158
Observation of fluorescence in ketone solutions of europium and terbium salts, E. Matovich and C. K. Suzuki—1442
On the nature of the visible charge-transfer band of $K_3Fe(CN)_6$, Charles S. Naiman—1900(L)
Optical absorption of magnetic domains in NiF_2, J. Ferguson, H. J. Guggenheim, and D. L. Wood—3149(L)
Optical reflection spectra of chromia–alumina, Charles P. Poole, Jr., and John F. Itzel, Jr.—3445
Optical spectra of exchange coupled Mn^{++} ion pairs in ZnS:MnS, Donald S. McClure—2850
Optical studies of anisotropic color centers in germanium-doped quartz, A. Halperin and J. E. Ralph—63
Polarization of the triplet–triplet absorption spectrum of some polyacenes by the method of photoselection, M. A. El-Sayed and T. Pavlopoulos—834
Polarized absorption spectra of purines and pyrimidines, Robert F. Stewart and Norman Davidson—255
Preparation and properties of monomolecular films of chlorophyll *a* and pheophytin *a*, W. D. Bellamy, G. L. Gaines, Jr., and A. G. Tweet—2528
Relationship between spectral shifts and solubility for naphthalene in compressed nonpolar gases, A. D. King, Jr., and W. W. Robertson—3071
Removal of orbital degeneracy in an asymmetric molecular environment, M. Brith and O. Schnepp—2714
Satellite bands in the spectra of gaseous mixtures and the shape of potential curves for neutral atoms and molecules in the state of collision, Oleg Jefimenko—2457

Solvent effects and a test of the theory of hypochromism, Martin T. Vala, Jr., and Stuart A. Rice—2348
Spectroscopic evidence for complex formation between carbon tetrachloride and aromatic hydrocarbons, Ralph Anderson and J. M. Prausnitz—1225
Spectroscopic study of the effect of high pressures on organic charge-transfer complexes in solution, J. Robert Gott and William G. Maisch—2229
Spectrum of Er^{3+} in $LaCl_3$, J. C. Eisenstein—2128
Spectrum of N_3^- in solution, Itamar Burak and Avner Treinin—189
Spectrum of Nd^{3+} in $LaCl_3$, J. C. Eisenstein—2134
Survey of the spectra of the divalent rare-earth ions in cubic crystals, Donald S. McClure and Zoltan Kiss—3251
Ultraviolet spectra of the nitrogen pink afterglow, C. E. Fairchild, A. B. Prag, and K. C. Clark—794
Vacuum ultraviolet absorption spectrum of diethyl ether, G. J. Hernandez—1355(L)
Vapor-phase equilibrium of NO, NO_2, H_2O, and HNO_2, D. M. Waldorf and A. L. Babb—432
Variation of coloration rates and luminescence in Harshaw potassium chloride, C. T. Butler, W. A. Sibley, and E. Sonder—242(L)

Accommodation Coefficients

Adsorption (see Surface Phenomena)

Announcements

Apparatus and Methods

Beams, Atomic and Molecular

Atom-molecule reaction of hydrogen studies by molecular beams, Sheldon Datz and Ellison H. Taylor—1896(L)
Determination of electronic energy levels of molecules by low-energy electron-impact spectroscopy, J. Arol Simpson and S. R. Mielczarek—1606(L)
Determination of the geometry of lithium oxide, $Li_2O(g)$, by electric deflection, Alfred Büchler, James L. Stauffer, William Klemperer, and Lennard Wharton—2299
Differences between low-energy electron-impact spectra at 0° and at large scattering angle, Aron Kuppermann and Lionel M. Raff—1607(L)
Direct determination of intermolecular potential parameters from scattering phase shifts, W. A. Sanders and C. R. Mueller—2572
Direct determination of scattering phase shifts from differential cross sections, J. W. Brackett, C. R. Mueller, and W. A. Sanders—2564
Erratum: Electric resonance spectrum and dipole moment of BaO, L. Wharton, M. Kaufman, and W. Klemperer [37, 622 1962)]—240(L)
Erratum: Nuclear moments and intermediate coupling, B. G. Wybourne [37, 1807 (1962)]—240(L)
Geometry of the alkaline-earth dihalides, L. Wharton, R. A. Berg, and W. Klemperer—2023
Mass spectrometric detection of polymers in supersonic molecular beams, Frank T. Greene and Thomas A. Milne—3150(L)

Catalysis

Kinetic theory of adsorption of intermediates in electrochemical catalysis, E. Gileadi and B. E. Conway—3420

Centrifugation

Chemical Reactions (see Kinetics of Reaction)

Combustion

Conductance

Comment on the photon beam intensity dependence of induced conductivity in solid insulators and semiconductors, G. R. Freeman—3537(L)
Effect of electric field strength on the gamma-radiation-induced conductance of liquid alkanes, G. R. Freeman—1580
Effect of pressure on the activation energy of electrical conduction in aqueous solution, R. A. Horne, B. R. Myers, and G. R. Frysinger—2666
Electronic properties of a new class of highly conductive organic solids, W. J. Siemons, P. E. Bierstedt, and R. G. Kepler—3523
Magnetic properties of a new class of highly conductive organic solids, R. G. Kepler—3528
Polarization effects in the ionic conductivity of alkali halide crystals. I. AC capacity, P. W. M. Jacobs and J. N. Maycock—757

Crystal Growth

Growth of anthracene whiskers by vapor deposition, Gerald W. Sears—2846
Mobility of silver crystallites on surfaces of MoS_2 and graphite, Gerald W. Sears and John B. Hudson—2380(L)
Morphological development of aluminum oxide crystals grown by vapor deposition, G. W. Sears and R. C. DeVries—2837
Structure of zinc oxide nuclei, G. W. Sears, R. Powell, and B. Donn—2248

Crystal Structure

Anisotropic g tensor in polycrystalline derivatives of tetrachlorosemiquinone, Roger J. Faber and M. Patricia Faber—3541(L)
Antiferromagnetic and crystal structure of lithium cupric chloride dihydrate, S. C. Abrahams and H. J. Williams—2923
Cation distributions in nonstoichiometric magnesium ferrite, R. L. Mozzi and A. E. Paladino—435
Crystal structure change of sodium azide at 19°C, B. S. Miller and G. J. King—2779(L)
Crystal structure of cerium magnesium nitrate hydrate, Allan Zalkin, J. D. Forrester, and David H. Templeton—2881
Metastable simple cubic structure in the indium–antimony system, C. B. Jordan—1613(L)
Molecular and crystal structure of $C_2H_5NH_3B_9H_{11}NHC_2H_5$, Ruth Lewin, Paul G. Simpson, and William N. Lipscomb—1532
Molecular, crystal, and valence structures of Iso-$B_{18}H_{22}$, Paul G. Simpson, Kirsten Folting, Robert D. Dobrott, and William N. Lipscomb—2339
Nature of the hydrogen bond in sodium acid fluoride, Barbara L. McGaw and James A. Ibers—2677
NMR studies of phase transitions. I. NaSH, C. K. Coogan, Geneva G. Belford, and H. S. Gutowsky—3061
Polyhedral clathrate hydrates. V. Structure of the tetra-*n*-butyl ammonium fluoride hydrate, R. K. McMullan, M. Bonamico, and G. A. Jeffrey—3295

Polyhedral clathrate hydrates. VI. Lattice type and ion distribution in some new peralkyl ammonium, phosphonium, and sulfonium salt hydrates, Gezina Beurskens, G. A. Jeffrey, R. K. McMullan—3311

Structural and magnetic characteristics of $TiFe_2$–$ZrFe_2$ and $ZrCo_2$–$ZrFe_2$ alloys, E. Piegger and R. S. Craig—137

Crystalline State

Absolute infrared intensity measurements in thin films. II. Solids deposited on halide plates, S. Maeda, G. Thyagarajan, and P. N. Schatz—3474

Band theory and the Hall effect in organic crystals, Oliver H. LeBlanc, Jr.—2395(L)

Calculation of surface distortion in an alkali halide crystal bounded by a free {100} face, G. C. Benson, P. I. Freeman, and E. Dempsey—302

Combination of the lattice modes with the internal modes in a crystal, S. S. Mitra—3031

Crystal-field spectra of $d^{3,7}$ ions. III. Spectrum of Cr^{3+} in various octahedral crystal fields, D. L. Wood, J. Ferguson, K. Knox, and J. F. Dillon, Jr.—890

Deuteron magnetic resonance study of barium chlorate monohydrate, Takehiko Chiba—947

Direct determination of exciton interactions for triplet states of organic crystals, G. C. Nieman and G. W. Robinson—1298

Domains in liquid crystals, Richard Williams—384

Elastic constants of ammonium chloride near the lambda point, Carl W. Garland and Joseph S. Jones—2874

Electron mobility in crystals, Marshall Fixman—1813

Electronic properties of a new class of highly conductive organic solids, W. J. Siemons, P. E. Bierstedt, and R. G. Kepler—3523

EPR study of impurity-related color centers in germanium-doped quartz, John H. Mackey, Jr.—74

Errata: Triplet–triplet annihilation and delayed fluorescence in molecular aggregates; errata and comments concerning ruby-laser-induced fluorescence in anthracene crystals, H. Sternlicht, G. C. Nieman, and G. W. Robinson [**38**, 1326 (1963)]—1610(L)

Erratum and further comments: Vibrational excitons. II. Degenerate vibrations, R. M. Hexter [**36**, 2285 (1962)]—1608(L)

Exciton magnetic resonance in Wurster's blue perchlorate, D. D. Thomas, H. Keller, and H. M. McConnell—2321

Fermion behavior of one-dimensional excitons, D. B. Chesnut and A. Suna—146

Frequency distribution and the specific heat of NaCl, Elizabeth M. Arase, Robert D. Hatcher, and Jacob Neuberger—353

Lattice vibrations and specific heats of several rare-earth ethylsulfates, Eugene Y. Wong and Edward H. Erath—1629

Lattice vibrations of $LaCl_3$ and $LaBr_3$ from vibronic spectra, Isaac Richman, Robert A. Satten, and Eugene Y. Wong—1833

Low-frequency motions of H_2O molecules in natrolite, Henri Boutin, G. J. Safford, and H. R. Danner—488(L)

Magnetic properties of a new class of highly conductive organic solids, R. G. Kepler—3528

Model for the lattice dynamics of metals and its application to sodium, P. K. Sharma and S. K. Joshi—2633

Molecular, crystal, and valence structures of $B_{18}H_{22}$, Paul G. Simpson and William N. Lipscomb—26

Molecular motion and the moment analysis of molecular spectra in condensed phases. I. Dipole-allowed spectra, R. G. Gordon—2788

Motion of the H_2O molecule in barium chlorate monohydrate, J. W. McGrath and A. A. Silvidi—3017

NMR in hydrate crystals: structural information from second moments, Bjørn Pedersen—720

NMR studies of phase transitions. I. NaSH, C. K. Coogan, Geneva G. Belford, and H. S. Gutowsky—3061

NMR study of the alkali hexafluorophosphates' dynamic structure, Gerald R. Miller and H. S. Gutowsky—1983

Nuclear magnetic resonance and molecular motion in the benzene–silver perchlorate complex, D. F. R. Gilson and C. A. McDowell—1825

On the excess electron and hole band structures and carrier mobility in naphthalene, anthracene, and several polyphenyls, Joseph L. Katz, Stuart A. Rice, Sang-il Choi, and Joshua Jortner—1683

On the nature of the crystal field approximation. II. Numerical results, R. T. Berger and C. M. Herzfeld—1122

Optical spectra of exchange coupled Mn^{++} ion pairs in ZnS:MnS, Donald S. McClure—2850

Optical studies of anisotropic color centers in germanium-doped quartz, A. Halperin and J. E. Ralph—63

Quadrupole antishielding in the rare earths, Johan Blok and D. A. Shirley—1128(L)

Quantum states of a triplet exciton gas, Harden M. McConnell and Charles G. Montgomery—252(L)

Rare-earth tungstates and 1:1 oxytungstates, Hans J. Borchardt—405

Study of low-frequency molecular motions in HF, KHF_2, KH_2F_3, and NaH_2F_3, Henri Boutin, G. J. Safford, and Velko Brajovic—3135

Survey of the spectra of the divalent rare-earth ions in cubic crystals, Donald S. McClure and Zoltan Kiss—3251

Temperature dependence of the Cl^{35} pure quadrupole resonance in $NaClO_2$, W. D. Partlow and W. G. Moulton—2381(L)

Temperature dependence of the pure quadrupole resonance frequency and spin-lattice relaxation time in $NaBrO_3$ at low temperatures, R. F. Tipsword and W. G. Moulton—2730

Theory for zero-field splittings in aromatic hydrocarbons. III, Seth Alan Boorstein and Martin Gouterman—2443

Thermodynamic properties of CH_4 and CD_4. Interpretation of the properties of the solids, J. H. Colwell, E. K. Gill, and J. A. Morrison—635

Thermoelectric power of CuCl containing $CdCl_2$, Y. W. Hsueh and R. W. Christy—3519

Tight-binding wavefunctions for electrons in molecular crystals in the presence of an electric field, R. E. Merrifield—3540(L)

Torsional oscillation of methylene groups in free radicals studied by ESR, Michio Kashiwagi and Yukio Kurita—3165(L)

Triplet exciton bands in aromatic crystals, Joseph L. Katz, Joshua Jortner, Sang-il Choi, and Stuart A. Rice—1897(L)

Variation of coloration rates and luminescence in Harshaw potassium chloride, C. T. Butler, W. A. Sibley, and E. Sonder—242(L)

Vibronic interactions in the exciton theory for molecular crystals, E. G. McRae—2974

Detonation (see also Shock Waves)

Comments on temperature measurements in hydrogen–oxygen detonations, Walter G. Zinman—3534(L)

Deuterium (see Isotopes)

Dielectrics

Atomic calculations. II. Polarizabilities and London force constants for F^-, Ne, and Na, Wilm E. Donath—2685
Comment on "Dispersion at millimeter wavelengths in methyl and ethyl alcohols," C. Brot and M. Magat—841(L)
Comment on the photon beam intensity dependence of induced conductivity in solid insulators and semiconductors, G. R. Freeman—3537(L)
Comparison of dielectric and mechanical relaxation in associated liquids, T. A. Litovitz and G. E. McDuffie, Jr.—729
Dielectric constant and interactions of polar molecules, Robert H. Cole—2602
Dielectric dispersion of a polar-nonpolar liquid mixture near the critical solution temperature, R. G. Quinn and C. P. Smyth—3285
Dielectric relaxation in the 1-propanol-2-methylpentane system, D. J. Denney and J. W. Ring—1268
Dielectric relaxation of some aromatic molecules containing methoxy groups, W. E. Vaughan, S. B. W. Roeder, and T. Provder—701
Dispersion at millimeter wavelengths in methyl and ethyl alcohols, J. A. Saxton—842(L)
Dispersion in ethanol and methanol at 2.1-mm wavelength, Worth E. Vaughan and Byron Kratochvil—1617(L)
Distribution of dielectric relaxation times in glycerol- and butanediol 1,3-*n*-propanol mixtures, G. E. McDuffie, Jr., J. T. LaMacchia, and A. E. Conord—1878
Effect of pressure and temperature on rotational isomeric relaxation in ethyl acetate, Warren M. Slie and Theodore A. Litovitz—1538
Electron structure of LiH and quadrupole moment of Li^7, S. L. Kahalas and R. K. Nesbet—529
Erratum: Electric resonance spectrum and dipole moment of BaO, L. Wharton, M. Kaufman, and W. Klemperer [**37**, 622 (1962)]—240(L)
Erratum: Infrared intensities of silane, Ira W. Levin and W. T. King [**37**, 1375 (1962)]—241(L)
Erratum and comment: The extension of Stokes' law of ionic motion to include the effect of dielectric relaxation, Richard H. Boyd [**35**, 1281 (1961)]—2376(L)
Free energy of nonequilibrium polarization systems. III. Statistical mechanics of homogeneous and electrode systems, R. A. Marcus—1734
General equation for the mean electrical energy of a dielectric body in an alternating electrical field, Gerhard Schwarz—2387(L)
Influence of an electric field on the dielectric loss of the liquid crystal *p*-azoxyanisole, E. F. Carr—1979
Infrared optical properties of cuprous oxide, Michael O'Keeffe—1789
Interactions in polar media. II. Continua, R. A. Marcus—460
Microwave spectrum, structure, and dipole moment of "*cis*"-N_2F_2, Robert L. Kuczkowski and E. Bright Wilson, Jr.—1030
Two assumptions in the theory of attractive forces between long saturated chains, Robert Zwanzig—2251
Work function change on monolayer adsorption, J. Ross Macdonald and C. A. Barlow, Jr.—412

Diffusion

Diffusion and heterogeneous reaction. V. Transition from a surface-to a diffusion-controlled process during atom recombination, Henry Wise, Clarence M. Ablow, and Dan J. Schott—2063
Diffusion of three ionic species in liquid solution, Earl E. Gose—735
Erratum: Measurement of the diffusion coefficient and radiative lifetime of nitrogen molecules in the $A^3\Sigma_u^+$ state, Edward C. Zipf, Jr. [**38**, 2034 (1963)]—3534(L)
Isotopic thermal-diffusion factor of argon, R. Paul, A. J. Howard, and W. W. Watson—3053
Motion of a Brownian particle in a periodic potential, Martin Goldstein—243(L)
NMR shift and diffusion study of electrolytes in 50% dioxane-water mixtures, Anthony Fratiello and Dean C. Douglass—2017
Nuclear magnetic relaxation and diffusion in liquid CH_4, CF_4, and mixtures of CH_4 and CF_4 with argon, John H. Rugheimer and Paul S. Hubbard—552
Nuclear magnetic relaxation and diffusion in liquid SF_6, William R. Hackleman and Paul S. Hubbard—2688
Potential and effective diffusion constant in a polyelectrolyte solution, Sam R. Coriell and Julius L. Jackson—2418
Role of hydrodynamic interaction in the diffusion of *n*-alkanes in carbon tetrachloride, R. K. Dewan and K. E. Van Holde—1820
Rotational transition and self-diffusion in polycrystalline succinonitrile, L. Petrakis and A. Rao—1633
Space charge in growing oxide films. III. Multispecies diffusion, A. T. Fromhold, Jr.—2278
Viscosity and diffusion coefficients of gaseous sulfur hexafluoride-carbon tetrafluoride mixtures, C. J. G. Raw and Helen Tang—2616

Dipole Moment

Effect of isotopic substitution on the dipole moment of molecules by symmetrical configuration, Francis A. Gangemi—3490
Electric dipole moment of trisilylamine, Ravi Varma, Alan G. MacDiarmid, and John G. Miller—3157(L)
Electric polarizability of some diatomic molecules, H. J. Kolker and M. Karplus—2011
Microwave spectrum, molecular structure, and dipole moment of dimethylphosphine, Richard Nelson—2382(L)
Microwave spectrum, quadrupolar coupling constants, and dipole moment of chlorobenzene, Robert L. Poynter—1962
Microwave spectrum, structure, and dipole moment of silyl acetylene, John S. Muenter and Victor W. Laurie—1181
Optimized single-configuration wavefunction for the ground state of lithium fluoride, A. D. McLean—2653

Effusion

Infrared spectra, and the structures and thermodynamics of gaseous LiO, Li_2O, and Li_2O_2, David White, K. S. Seshadri, D. F. Dever, D. E. Mann, and M. J. Linevsky—2463

Elasticity

Elastic constants of ammonium chloride near the lambda point, Carl W. Garland and Joseph S. Jones—2874

Electrical Properties

Band theory and the Hall effect in organic crystals, Oliver H. LeBlanc, Jr.—2395(L)
Dark conductivity of cationic dye photoconductors, R. C. Nelson—859
Electrical conductivity of potassium films on potassium chloride, Ling Y. Wei—2709
Electronic properties of a new class of highly conductive organic solids, W. J. Siemons, P. E. Bierstedt, and R. G. Kepler—3523
Magnetic properties of a new class of highly conductive organic solids, R. G. Kepler—3528
On the excess electron and hole band structures and carrier mobility in naphthalene, anthracene, and several polyphenyls, Joseph L. Katz, Stuart A. Rice, Sang-il Choi, and Joshua Jortner—1683
Polarization effects in the ionic conductivity of alkali halide crystals. I. AC capacity, P. W. M. Jacobs and J. N. Maycock—757
Thermoelectric power of CuCl containing $CdCl_2$, Y. W. Hsueh and R. W. Christy—3519
Tight-binding wavefunctions for electrons in molecular crystals in the presence of an electric field, R. E. Merrifield—3540(L)
Variation of electrical resistivity of cubic tantalum carbide with composition, Jeanette R. Cooper and Richard L. Hansler—248(L)
X-ray and electrical conductivity study of the fluorite phase in the system ZrO_2–CaO, T. Y. Tien and E. C. Subbarao—1041

Electrochemistry

Densities and molar volumes of electrolytes in mixed solvents, J. Padova—2599
Effect of pressure on the activation energy of electrical conduction in aqueous solution, R. A. Horne, B. R. Myers, and G. R. Frysinger—2666
Free energy of nonequilibrium polarization systems. III. Statistical mechanics of homogeneous and electrode systems, R. A. Marcus—1734
Ion-solvent interaction. II. Partial molar volume and electrostriction: a thermodynamic approach, J. Padova—1552
Motion of a Brownian particle in a periodic potential, Martin Goldstein—243(L)
NMR shift and diffusion study of electrolytes in 50% dioxane–water mixtures, Anthony Fratiello and Dean C. Douglass—2017
PbO solid electrolyte voltaic cell, Kenneth L. Laws—1924
Physical and chemical effects at the anthracene-electrolyte interface due to photoelectrolysis, R. C. Jarnagin, J. Gilliland, Jr., J. S. Kim, and M. Silver—573
Potential and effective diffusion constant in a polyelectrolyte solution, Sam R. Coriell and Julius L. Jackson—2418
Second virial coefficient of polyelectrolytes. III, Norio Ise and Paul Ander—592
Short-range interactions of aqueous ions, L. B. Magnusson—1953
Statistical mechanical theory of double-layer structure and properties, Frank P. Buff and Frank H. Stillinger, Jr.—1911
Work function change on monolayer adsorption, J. Ross Macdonald and C. A. Barlow, Jr.—412

Electron Affinity

Electron Diffraction

Analytical expressions for potentials of neutral Thomas-Fermi-Dirac atoms and for the corresponding atomic scattering factors for x rays and electrons, R. A. Bonham and T. G. Strand—2200
Calculation of x-ray and electron intensities scattered by the NH_3 and H_2O molecules, Claude Tavard, Marcel Rouault, Monique Roux, and Marguerite Cornille—2390(L)
Electron diffraction study of the molecular structures of sulfur tetrafluoride (SF_4) and thionyl tetrafluoride (SOF_4), K. Kimura and S. H. Bauer—3172
On the density-intensity calibration in electron diffraction studies, K. Kimura and S. H. Bauer—3171
Structure and rotational isomerization of free hydrocarbon chains, L. S. Bartell and D. A. Kohl—3097

Electron Microscopy

Electrophoresis

Effect of radio-frequency fields on the electrophoretic mobility of some colloids, David J. Wilkins and John H. Heller—3401

Emission Spectra

Absorption and emission spectrum of $CaF_2:U^{3+}$ from 2.1 to 2.5 microns, Robert E. Meredith and Joe A. Jenney—3127
Continuum infrared radiation from high-temperature air and nitrogen, Raymond L. Taylor—2354
Direct determination of exciton interactions for triplet states of organic crystals, G. C. Nieman and G. W. Robinson—1298
Emission and absorption spectra of OF_2–NO diffusion flame, P. L. Goodfriend and H. P. Woods—2379(L)
Emission and dissociation of NO_2 in shock waves, Hiroyuki Hiraoka and R. Hardwick—2361
Emission spectrum and thermodynamic properties of gallium monoxide, Victor Raziunas, George J. Macur, and Sidney Katz—1161
Erratum: Measurement of the diffusion coefficient and radiative lifetime of nitrogen molecules in the $A^3\Sigma_u^+$ state, Edward C. Zipf, Jr. [38, 2034 (1963)]—3534(L)
Indirect observation of singlet–triplet absorption in anthracene crystals, P. Avakian, E. Abramson, R. G. Kepler, and J. C. Caris—1127(L)
Observation of fluorescence in ketone solutions of europium and terbium salts, E. Matovich and C. K. Suzuki—1442
Observations on the maser-induced graphite jet, John A. Howe—1362(L)
Polarization of the $\pi^* \rightarrow \pi$ and $\pi^* \rightarrow n$ phosphorescence spectra of *N*-heterocyclics, M. A. El-Sayed and R. G. Brewer—1623
Red chemiluminescence of molecular oxygen in aqueous solution, Ahsan Ullah Khan and Michael Kasha—2105(L)
Shock-wave integrated intensity measurements of the 2.7 micron CO_2 band between 1200° and 3000°K, J. C. Breeze and C. C. Ferriso—2619
Short-duration visible afterglow in helium, Arthur L. Schmeltekopf, Jr., and H. P. Broida—1261
600 Å band of helium, Y. Tanaka and K. Yoshino—3081
Two-photon excitation of phosphorescence and fluorescence, Albert H. Adelman and Carl M. Verber—931

Energy Transfer

Classical model for vibrational and rotational excitation of diatomic molecules by collision. III, Sidney W. Benson and George C. Berend—2777(L)
Collisional deactivation of the excited states of oxygen atoms, H. Yamazaki and R. J. Cvetanović—1902(L)
Comparison of dielectric and mechanical relaxation in associated liquids, T. A. Litovitz and G. E. McDuffie, Jr.—729
Dielectric relaxation in the 1-propanol-2-methylpentane system, D. J. Denney and J. W. Ring—1268
Distribution of dielectric relaxation times in glycerol- and butanediol 1,3-*n*-propanol mixtures, G. E. McDuffie, Jr., J. T. LaMacchia, and A. E. Conord—1878
Effect of pressure and temperature on rotational isomeric relaxation in ethyl acetate, Warren M. Slie and Theodore A. Litovitz—1538
Energy exchange between a hot tungsten surface and cold gases, Gerald L. De Poorter and Alan W. Searcy—925
Energy-transfer studies by spectrophotofluorometric method, Francis Wilkinson and Jean T. Dubois—377
Inter- and intra- (intera) molecular energy transfer to rare-earth ions in chelates, M. A. El-Sayed and M. L. Bhaumik—2391(L)
Molecular relaxation times from thermal transpiration measurements, E. A. Mason—522
Nuclear magnetic relaxation and diffusion in liquid CH_4, CF_4, and mixtures of CH_4 and CF_4 with argon, John H. Rugheimer and Paul S. Hubbard—552
Nuclear pure quadrupole relaxation and its temperature dependence in solids, D. E. Woessner and H. S. Gutowsky—440
Nuclear relaxation in molecular liquids containing free radicals, H. S. Gutowsky and Julia Chow Tai—208
Oxygen vibrational relaxation in O_2–H_2 mixtures, Donald R. White and Roger C. Millikan—2107(L)
Oxygen vibrational relaxation in O_2–He and O_2–Ar mixtures, Donald R. White and Roger C. Millikan—1807
Photosensitized *cis-trans* isomerization of butene-2, R. B. Cundall, F. J. Fletcher, and D. G. Milne—3536(L)
Rotational temperatures of OH radicals in shock waves, Hajime Miyama and Tetsu Takeyama—851(L)
Sound dispersion in substituted methane–inert gas mixtures, J. R. Olson and Sam Legvold—2902
Triplet-triplet transfer in plastic at 298° and 77°K, K. B. Eisenthal and R. Murashige—2108(L)
Vibrational energy exchange between N_2 and CO. The vibrational relaxation of nitrogen, Roger C. Millikan and Donald R. White—98
Vibrational relaxation in high-density methane, Walter M. Madigosky—2704
Vibrational relaxation of oxygen, Donald R. White and Roger C. Millikan—1803

Equation of State

Errata

Errata: Triplet-triplet annihilation and delayed fluorescence in molecular aggregates; errata and comments concerning ruby-laser-induced fluorescence in anthracene crystals, H. Sternlicht, G. C. Nieman, and G. W. Robinson [**38**, 1326 (1963)]—1610(L)
Erratum: Asymmetric-top vibration-rotation Hamiltonians, K. T. Chung and Paul M. Parker [**38**, 8 (1963)]—240(L)
Erratum: Comparison of the Hartree-Fock orbital with the first natural spin orbital for two-electron systems, George V. Nazaroff and Joseph O. Hirschfelder [**39**, 715 (1963)]—3155(L)
Erratum: Electric resonance spectrum and dipole moment of BaO, L. Wharton, M. Kaufman, and W. Klemperer [**37**, 622 (1962)]—240(L)
Erratum: Electronic structure of ammonia, A. B. F. Duncan [**27**, 423 (1957)]—240(L)
Erratum: Gel formation in polymers resulting from simultaneous crosslinking scission, Mitio Inokuti [**38**, 2999 (1963)]—2376(L)
Erratum: High-resolution NMR spectrum of 1,2-benzanthracene, J. D. Memory and Thomas B. Cobb [**38**, 1453 (1963)]—3155(L)
Erratum: Infrared intensities of silane, Ira W. Levin and W. T. King [**37**, 1375 (1962)]—241(L)
Erratum: Mass spectra and appearance potentials of diazirine and diazomethane, Grover S. Paulett and Raymond Ettinger [**39**, 825 (1963)]—3534(L)
Erratum: Mean lives of positrons in aqueous solutions, J. E. Jackson and J. D. McGervey [**38**, 300 (1963)]—487(L)
Erratum: Measurement of the diffusion coefficient and radiative lifetime of nitrogen molecules in the $A^3\Sigma_u^+$ state, Edward C. Zipf, Jr. [**38**, 2034 (1963)]—3534(L)
Erratum: Monte Carlo study of coiling molecules. II, F. T. Wall, S. Windwer, and P. J. Gans [**38**, 2228 (1963)]—1900(L)
Erratum: Nonuniform scaling of an approximate H_2^+ wavefunction, William J. Meath and Joseph O. Hirschfelder [**39**, 1135 (1963)]—3534(L)
Erratum: Nuclear magnetic resonance studies of electron transfer between tris(2,2′-dipyridyl)osmium(II) and (III) ions, between bis(cyclopentadienyl)iron(II) and (III) ion, and between tris(1,10-phenanthroline)iron(II) and (III) ions, M. W. Dietrich and A. C. Wahl [**38**, 1591 (1963)]—2376(L)
Erratum: Nuclear moments and intermediate coupling, B. G. Wybourne [**37**, 1807 (1962)]—240(L)
Erratum: Potential energy constants, rotational distortion constants, and thermodynamic properties of methylacetylenes, P. N. Daykin, S. Sundaram, and Forrest F. Cleveland [**37**, 1087 (1962)]—3156(L)
Erratum: Wavefunctions and correlation energies for F, F^-, and Ne, L. L. Lohr, Jr., and Leland C. Allen [**34**, 1156 (1961)]—2106(L)
Erratum and further comments: Vibrational excitons. II. Degenerate vibrations, R. M. Hexter [**36**, 2285 (1962)]—1608(L)

Faraday Effect

Field-Emission Microscopy

Field desorption of carbon monoxide from tungsten, Lynwood W. Swanson and Robert Gomer—2813

Films (see Surface Phenomena)

Flames

Emission and absorption spectra of OF_2–NO diffusion flame, P. L. Goodfriend and H. P. Woods—2379(L)

Ionization rate constants of alkali metals in CO flames, Tj. Hollander, P. J. Kalff, and C. T. J. Alkemade—2558

Fluorescence

Absorption and fluorescence spectra of several praseodymium-doped crystals and the change of covalence in the chemical bonds of the praseodymium ion, Eugene Y. Wong, Oscar M. Stafsudd, and David R. Johnston—786

Correlation between Stokes shift and stability constant of 6,7-dihydroxynaphthalene-2-sulfonic acid metal chelates, Naoya Ono and Kazushi Hirota—1907(L)

Delayed fluorescence and possible one-electron photo-ionization of dyes in rigid media, E. C. Lim and Wen-Yang Wen—847(L)

Delayed fluorescence of solid solutions of polyacenes. II. Kinetic considerations, Tohru Azumi and Seán P. McGlynn—1186

Delayed fluorescence of solid solutions of polyacenes. IV. The origin of excimer fluorescence, Tohru Azumi and Seán P. McGlynn—3533(L)

Double-photon excitation of organic molecules in dilute solution, W. L. Peticolas and K. E. Rieckhoff—1347(L)

Energy levels of Yb^{3+} in garnets, D. L. Wood—1671

Energy-transfer studies by spectrophotofluorometric method, Francis Wilkinson and Jean T. Dubois—377

Enhancement of fluorescence yield of rare-earth ions by heavy water, John L. Kropp and Maurice W. Windsor—2769(L)

External heavy-atom spin–orbital coupling effect. IV. Intersystem crossing, S. P. McGlynn, J. Daigre, and F. J. Smith—675

Fluorescence and lifetimes of Eu chelates, H. Samelson and A. Lempicki—110

Fluorescence lifetime of the europium dibenzoylmethides, Max Metlay—491(L)

Fluorescence of europium thenoyltrifluoroacetonate. I. Evaluation of laser threshold parameters, H. Winston, O. J. Marsh, C. K. Suzuki, and C. L. Telk—267

Fluorescence of europium thenoyltrifluoroacetonate. II. Determination of absolute quantum efficiency, R. A. Gudmundsen, O. J. Marsh, and E. Matovich—272

Fluorescence of naphthacene vapor, R. Williams and G. J. Goldsmith—2008

Fluorescence spectral study of wavelength shifters for scintillation plastics, Stanley R. Sandler and K. C. Tsou—1062

Indirect observation of singlet–triplet absorption in anthracene crystals, P. Avakian, E. Abramson, R. G. Kepler, and J. C. Caris—1127(L)

Transfer of triplet excitation energy in benzophenone crystals, Robin M. Hochstrasser—3153(L)

Inter- and intra- (intera) molecular energy transfer to rare-earth ions in chelates, M. A. El-Sayed and M. L. Bhaumik—2391(L)

Internal conversion from upper electronic states to the first excited singlet state of benzene, toluene, *p*-xylene, and mesitylene, Charles L. Braun, Shunji Kato, and Sanford Lipsky—1645

Intramolecular heavy-atom effect on the polarization of naphthalene phosphorescence, M. A. El-Sayed and T. Pavlopoulos—1899(L)

Lattice work performed by excited molecules, M. L. Bhaumik and R. Hardwick—1595

Observation of fluorescence in ketone solutions of europium and terbium salts, E. Matovich and C. K. Suzuki—1442

One-electron photo-ionization of acridine dyes in rigid media: evidence for the formation of transient radical ion, E. C. Lim and G. W. Swenson—2768(L)

Paramagnetic resonance measurements of the phosphorescent state of quinoxaline, James S. Vincent and August H. Maki—3088

Polarization of the $\pi^* \rightarrow \pi$ and $\pi^* \rightarrow n$ phosphorescence spectra of *N*-heterocyclics, M. A. El-Sayed and R. G. Brewer—1623

Radiationless triplet–singlet transitions in naphthalene, Steven G. Hadley, Howard E. Rast, Jr., and Richard A. Keller—705

Radiative lifetime of triplet biacetyl, Jean T. Dubois and Francis Wilkinson—899

Radiative transition probabilities within $4f^n$ configurations: the fluorescence spectrum of europium ethylsulfate, John D. Axe, Jr.—1154

Rare-earth tungstates and 1:1 oxytungstates, Hans J. Borchardt—504

Triplet–triplet transfer in plastic at 298° and 77°K, K. B. Eisenthal and R. Murashige—2108(L)

Two-photon excitation of phosphorescence and fluorescence, Albert H. Adelman and Carl M. Verber—931

Viscosity dependence of the first-order decay of the triplet state of anthracene and related molecules, Robert Livingston and William R. Ware—2593

Free Radicals

Collisional transition probabilities for vibrational deactivation of chemically activated *sec*-butyl radicals. Different initial vibrational energy levels, G. H. Kohlmaier and B. S. Rabinovitch—490(L)

Decomposition of chemically activated ethyl-d_1 radicals, J. H. Current, B. S. Rabinovitch, C. A. Heller, and A. S. Gordon—3535(L)

Effect of additives on the ionic reaction mechanism in the radiolysis of methane, P. Ausloos, S. G. Lias, and R. Gorden, Jr.—3341

Electron paramagnetic resonance of a hydrazine radical ion, J. Q. Adams and J. R. Thomas—1904(L)

Electron spin resonance of some arylsulfenyl radicals, P. J. Zandstra and J. D. Michaelsen—933

Electron spin resonance spectrum of XeF in γ-irradiated xenon tetrafluoride, J. R. Morton and W. E. Falconer—427

Electron spin resonance studies of transient alkyl radicals, Richard W. Fessenden and Robert H. Schuler—2147

Electron spin resonance study of the anion radicals of *cis*- and *trans*-thianthrene-5,10-dioxide, E. T. Kaiser and D. H. Eargle, Jr.—1353(L)

EPR spectra of SH, SD, and SO radicals in the gaseous state, C. C. McDonald—2587

ESR study of polyazine anions, Ellery W. Stone and August H. Maki—1635

Ferromagnetism in solid free radicals, Harden M. McConnell—1910(L)

High-resolution ESR spectra of photochemically generated free radicals: the viologens, C. S. Johnson, Jr., and H. S. Gutowsky—58
Hyperfine electron spin resonance spectrum of the NH_2 free radical, Brian T. Sutcliffe—3322
Intramolecular electron transfer in bis(*p*-nitrophenyl) anions and its effect on electron spin resonance hyperfine structure, John E. Harriman and August H. Maki—778
Kinetics of the reaction of HI with ethyl iodide and the heat of formation of the ethyl radical, D. B. Hartley and Sidney W. Benson—132
Linear antiferromagnetism in the organic free radical 1,3-bis-diphenylene-2-phenyl allyl, W. O. Hamilton and G. E. Pake—2694
On the formation of hydrogen sesquioxide, H_2O_3, in free-radical reactions on cold surfaces, J. A. Ghormley—3539(L)
One-electron photo-ionization of acridine dyes in rigid media: evidence for the formation of transient radical ion, E. C. Lim and G. W. Swenson—2768(L)
Photoinduced change of organic free radicals as studied by ESR. I. Conversion of allyl-type to alkyl-type radicals in irradiated polyethylene, Shun-ichi Ohnishi, Shun-ichi Sugimoto, and Isamu Nitta—2647
Photoinduced free-radical ion formation from some charge transfer complexes, Raymond L. Ward—852(L)
Spin–orbit interactions in molecular radicals, Sivert H. Glarum—3141
Unimolecular decomposition of chemically activated propyl radicals. Normal intermolecular secondary kinetic isotope effect, W. E. Falconer, B. S. Rabinovitch, and R. J. Cvetanović—40

Free Rotation (see Rotation)

Gases

Antiferromagnetic spherical Ising model and some properties of the associated lattice gas, Robert M. Mazo—2196
Chemi-ionization in atomic O and N mixtures, Carole R. Gatz, Robert A. Young, and Robert L. Sharpless—1234
Collision-narrowing technique for NMR studies of gases at moderate pressures, Louis G. Alexakos and C. D. Cornwell—1616(L)
Drift velocities of ions in nitrogen, John A. Dahlquist—1203
Energy exchange between a hot tungsten surface and cold gases, Gerald L. De Poorter and Alan W. Searcy—925
First-order phase transition in a gas of long thin rods, Robert Zwanzig—1714
Formal kinetic theory of transport phenomena in polyatomic gas mixtures, L. Monchick, K. S. Yun, and E. A. Mason—654
Gas-phase complexes in hydrogen chloride. D. H. Rank, P. Sitaram, W. A. Glickman, and T. A. Wiggins—2673
Influence of molecular quadrupole moments on the second virial coefficient, Ronald H. Orcutt—605
Ionization potentials of doubly charged oxygen and nitrogen, F. H. Dorman and J. D. Morrison—1906(L)
Irreducible cluster integrals of hard-sphere gases, Shigetoshi Katsura and Yutaka Abe—2068
Low-temperature limiting behavior of gas imperfections due to gas–solid interactions, Robert S. Hansen and James A. Murphy—1642
Millimeter wave spectroscopy of unstable molecular species. I. Carbon monosulfide, Roger Kewley, K. V. L. N. Sastry, Manfred Winnewisser, and Walter Gordy—2856
Molecular relaxation times from thermal transpiration measurements, E. A. Mason—522
Monte Carlo calculations for the two-dimensional triangular lattice gas: supercritical region, Dwayne A. Chesnut—2081
Separation of gas mixtures in supersonic jets, Victor H. Reis and John B. Fenn—3240
600 Å band of helium, Y. Tanaka and K. Yoshino—3081
Systematics of vibrational relaxation, Roger C. Millikan and Donald R. White—3209
Time-of-flight investigations of electron transport in gases, G. S. Hurst, L. B. O'Kelly, E. B. Wagner, and J. A. Stockdale—1341
Vaporization of tungsten studied by flash heating and kinetic spectroscopy. I. Near-ultraviolet region, L. S. Nelson and N. A. Kuebler—1055
Virial coefficients for square-well potentials, E. Hiis Hauge—389
Viscosity and diffusion coefficients of gaseous sulfur hexafluoride–carbon tetrafluoride mixtures, C. J. G. Raw and Helen Tang—2616

Glasses

Deuterium isotope effect on glass transformation temperatures of aqueous inorganic solutions, L. C. Shepley and A. B. Bestul—680
Electron-spin resonance studies of irradiated glasses containing boron, Sook Lee and P. J. Bray—2863
Some thermodynamic aspects of the glass transition: free volume, entropy, and enthalpy theories, Martin Goldstein—3369
Structure of oriented sodium metaphosphate glass fibers, M. E. Milberg and M. C. Daly—2966

Heat Capacity (see Thermodynamic Properties)

High Pressures

Catalytic effects in the transformation graphite to diamond, H. M. Strong—2057
Effect of pressure on the activation energy of electrical conduction in aqueous solution, R. A. Horne, B. R. Myers, and G. R. Frysinger—2666
Equilibrium polymerization under pressure: the case of sulfur, Adi Eisenberg—1852
Melting and polymorphism in $SbCl_3$ and $SbBr_3$, Billy F. Bowles, Gene J. Scott, and Stanley E. Babb, Jr.—831
Melting properties of silver nitrate to 10 000 atm, B. B. Owens—1053
Spectroscopic study of the effect of high pressures on organic charge-transfer complexes in solution, J. Robert Gott and William G. Maisch—2229

Hindered Rotation (see Rotation)

Infrared Spectra (see Absorption Spectra)

Intensities of Spectra

Applications of attenuated-total-reflection spectroscopy to absolute intensity measurements, Philip A. Flournoy—3156(L)

Isotope Effects

Chemical effects of isomeric transitions: separation of the isomers of Te^{127}, Te^{129}, and Te^{131}, Richard L. Hahn—3482

Computation of unique NMR parameters for ABC systems with the aid of C^{13}–H satellite spectra, R. T. Hobgood, Jr., Ralph E. Mayo, and J. H. Goldstein—2501

Coordination numbers of beryllium and aluminum ions in aqueous solutions, Robert E. Connick and Daniel N. Fiat—1349(L)

Deuterium isotope effect on glass transformation temperatures of aqueous inorganic solutions, L. C. Shepley and A. B. Bestul—680

Deuterium kinetic isotope effect in the hydrogen–iodine reaction, John H. Sullivan—3001

Direct determination of exciton interactions for triplet states of organic crystals, G. C. Nieman and G. W. Robinson—1298

Dissociative charge-exchange reactions of rare-gas ions with propane, Jean H. Futrell and Thomas O. Tiernan—2539

Effect of isotopic substitution on the dipole moment of molecules by symmetrical configuration, Francis A. Gangemi—3490

Enhancement of fluorescence yield of rare-earth ions by heavy water, John L. Kropp and Maurice W. Windsor—2769(L)

Erratum and further comments: Vibrational excitons. II. Degenerate vibrations, R. M. Hexter [**36**, 2285 (1962)]—1608(L)

Infrared absorption intensities in mixed crystals of benzene and deuterobenzene, J. Leland Hollenberg and David A. Dows—495

Infrared spectroscopic evidence for the species HNC, Dolphus E. Milligan and Marilyn E. Jacox—712

Isotope bands and the vibration assignment of the $D^2\pi_g$–$A^2\pi_u$ system of N_2^+, T. Namioka, K. Yoshino, and Y. Tanaka—2629

Isotope effects on internal frequencies in the condensed phase resulting from interactions with the hindered translations and rotations. The vapor pressures of the isotopic ethylenes, Marvin J. Stern, W. Alexander Van Hook, and Max Wolfsberg—3179

Isotopic shifts in some ultraviolet systems of N_2, P. K. Carroll and D. Mahon-Smith—237(L)

Methane–tritium system. I. Mass spectra of tritium-substituted methanes, Richard J. Kandel—2581

Molal volumes and zero-point energies of the isotopic liquid hydrogens, Jacob Bigeleisen—1356(L)

Normal vibrations, potential constants, and vibration–rotation interaction constants in cyclobutane and cyclobutane-d_8, R. C. Lord and I. Nakagawa—2951

Rearrangement processes for forming oxonium ions from aliphatic ester ions, R. R. Bernecker and F. A. Long—253(L)

Sulfur and silicon isotope effects in fluorine nuclear magnetic resonance spectroscopy, R. J. Gillespie and J. W. Quail—2555

Theoretical considerations on carbon isotope effects in the decarboxylation of malonic acid, Marvin J. Stern and Max Wolfsberg—2776(L)

Thermodynamic properties of CH_4 and CD_4. Interpretation of the properties of the solids, J. H. Colwell, E. K. Gill, and J. A. Morrison—635

Unimolecular decomposition of chemically activated propyl radicals. Normal intermolecular secondary kinetic isotope effect, W. E. Falconer, B. S. Rabinovitch, and R. J. Cvetanović—40

Vibrational spectra and the inversion phenomenon in cyanamide and deuterated cyanamide, William H. Fletcher and Farrell B. Brown—2478

Isotopes

Kinetics of Reaction

Absorption spectra of polyatomic molecules at high temperatures. II. Benzene and perfluorobenzene. Kinetics of the pyrolysis of benzene, S. N. Bauer and C. F. Aten—1253

Annihilation rates and collision complex of positrons in freon-12, J. H. Green and S. J. Tao—3160(L)

Approximate expression for the tunnelling correction, H. Shin—2934

Atom–molecule reaction of hydrogen studies by molecular beams, Sheldon Datz and Ellison H. Taylor—1896(L)

Chemiluminescent reactions involving atomic oxygen and nitrogen, Robert A. Young and Robert L. Sharpless—1071

Classical model for vibrational and rotational excitation of diatomic molecules by collision. III, Sidney W. Benson and George C. Berend—2777(L)

Collisional deactivation of the excited states of oxygen atoms, H. Yamazaki and R. J. Cvetanović—1902(L)

Collisional transition probabilities for vibrational deactivation of chemically activated *sec*-butyl radicals. Different initial vibrational energy levels, G. H. Kohlmaier and B. S. Rabinovitch—490(L)

Comments on temperature measurements in hydrogen–oxygen detonations, Walter G. Zinman—3534(L)

Conditions for first- or second-order kinetics during multiple zone reactions, Malcolm Dole and Mitio Inokuti—310

Cross sections for some gas-phase single-charge-transfer reactions of N_2^{++} and Ar^{++}, E. R. Weiner, G. R. Hertel, and W. S. Koski—3538(L)

Cross sections of ion–permanent-dipole reactions by mass spectrometry, Thomas F. Moran and William H. Hamill—1413

Decomposition of chemically activated ethyl-d_1 radicals, J. H. Current, B. S. Rabinovitch, C. A. Heller, and A. S. Gordon—3535(L)

Destruction of acetylene in flames with oxygen, C. P. Fenimore and G. W. Jones—1514

Deuterium kinetic isotope effect in the hydrogen–iodine reaction, John H. Sullivan—3001

Diffusion and heterogeneous reaction. V. Transition from a surface- to a diffusion-controlled process during atom recombination, Henry Wise, Clarence M. Ablow, and Dan J. Schott—2063

Dissociative charge-exchange reactions of rare-gas ions with propane, Jean H. Futrell and Thomas O. Tiernan—2539

Dissociative charge transfer in He^+–O_2 and He^+–N_2 collisions, R. F. Stebbings, A. C. H. Smith, and Helmut Ehrhardt—968

Dissociative ionization of CO by ion impact, Clayton F. Giese and William B. Maier, II—197

Effect of additives on the ionic reaction mechanism in the radiolysis of methane, P. Ausloos, S. G. Lias, and R. Gorden, Jr.—3341

Emission and dissociation of NO_2 in shock waves, Hiroyuki Hiraoka and R. Hardwick—2361

Erratum: Nuclear magnetic resonance studies of electron transfer between tris(2,2′-dipyridyl)osmium(II) and (III) ions, between bis(cyclopentadienyl)iron(II) and (III) ion, and between tris(1,10-phenanthroline)iron(II) and (III) ions, M. W. Dietrich and A. C. Wahl [38, 1591 (1963)]—2376(L)

Fluoride interference films on uranium dioxide. I. The kinetically derived optical equation, W. P. Ellis—1172

Fluoride interference films on uranium dioxide. II. Kinetics of the hydrofluorination reaction, W. P. Ellis and B. W. Roberts—1176

Gas-phase radiolysis of *n*-butane, R. P. Borkowski and P. J. Ausloos—818

General acid catalysis of the fading of photoisomerized 2,4-dinitrotoluene, Gunnar Wettermark and Robert Ricci—1218

Hydrogen-chloride-catalyzed pyrolysis of dimethyl ether and the use of HCl catalysis for diagnosis of complex chains, Kenneth H. Anderson and Sidney W. Benson—1677

Improved calculation of quasiequilibrium reaction rate constants, S. H. Lin and Henry Eyring—1577

Investigation of early ionization processes in shocked xenon, D. S. Hacker and H. Bloomberg—3263

Ion-molecule reactions in gaseous ammonia, G. A. W. Derwish, A. Galli, A. Giardini-Guidoni, and G. G. Volpi—1599

Ion-molecule reactions leading to NO^+ formation, A. Galli, A. Giardini-Guidoni, and G. G. Volpi—518

Ionization rate constants of alkali metals in CO flames, Tj. Hollander, P. J. Kalff, and C. T. J. Alkemade—2558

Kinetic retardation in the quarternization of poly(4-vinylpyridine), C. B. Arends—1903(L)

Kinetic theory of hot atom reactions. II. Evaluation of collisional energy loss. Application to reactive mixtures, Richard Wolfgang—2983

Kinetics of desorption. III. Rb^+, K^+, and Na^+ on rhenium, Milton D. Scheer and Joseph Fine—1752

Kinetics of the reaction between solvated electrons and water in ethylenediamine, R. R. Dewald, J. L. Dye, M. Eigen, and L. deMaeyer—2388(L)

Kinetics of the reaction of HI with ethyl iodide and the heat of formation of the ethyl radical, D. B. Hartley and Sidney W. Benson—132

Kinetics of three-body atom recombination, C. B. Kretschmer and H. L. Petersen—1772

Mass spectral studies of kinetics behind shock waves. I. Thermal dissociation of chlorine, R. W. Diesen and W. J. Felmlee—2115

Mass spectral studies of kinetics behind shock waves. II. Thermal decomposition of hydrazine, R. W. Diesen—2121

Mass-spectrometric investigation of the oxidation of molybdenum and tungsten, Joan B. Berkowitz-Mattuck, Alfred Büchler, John L. Engelke, and Steven N. Goldstein—2722

Monte Carlo calculations. III. A general study of bimolecular exchange reactions, Normand C. Blais and Don L. Bunker—315

Neon–hydrogen ion-molecule reactions, T. F. Moran and L. Friedman—2491

NMR study of the protolysis kinetics in simple amino acids. II. Sarcosine (the Zwitterion form), M. Sheinblatt—2005

Nuclear magnetic resonance study of the protolysis of trimethylammonium ion in aqueous solution—order of the reaction with respect to solvent, Z. Luz and S. Meiboom—366

Nuclear transverse relaxation in electron-transfer reactions, Charles S. Johnson, Jr.—2111

On the formation of hydrogen sesquioxide, H_2O_3, in free-radical reactions on cold surfaces, J. A. Ghormley—3539(L)

On the hydrogen-bromine reaction rate in a nonsteady state, H. Shin—2937

On the kinetics of chemisorption, R. Coekelbergs, A. Frennet, G. Lienard, and P. Resibois—585

On the mechanism of the pyrolysis of neopentyl chloride, Kenneth H. Anderson and Sidney W. Benson—1673

Photochemical studies in flash photolysis. III. Photolysis of acetone in different wavelength regions, A. Shilman and R. A. Marcus—996

Photosensitized *cis–trans* isomerization of butene-2, R. B. Cundall, F. J. Fletcher, and D. G. Milne—3536(L)

Polymerization kinetics of biological macromolecules on templates, Robert Simha, J. M. Zimmerman, and J. Moacanin—1239

Primary reactions in the mercury photosensitized decomposition of 1-butyne, propyne, and acetylene at low pressures, P. Kebarle—2218

Radiation decomposition of aqueous nitrite solution containing mercuric salts, Kenichi Shinohara, Tadamasa Shida, and Nobufusa Saito—1470

Rate of exchange of halide nuclei with mercury (II) in aqueous solution, D. E. O'Reilly, G. E. Schacher, and K. Schug—1756

Reaction between nitric oxide and ozone in a supersonic nozzle, J. E. Marte, E. Tschuikow-Roux, and H. W. Ford—3277

Reaction kinetics of a long chain molecule, Leon Lazare—727

Reaction rates of hydrogen, ammonia, and methane with mixtures of atomic and molecular oxygen, Edgar L. Wong and A. E. Potter, Jr.—2211

Rearrangement processes for forming oxonium ions from aliphatic ester ions, R. R. Bernecker and F. A. Long—253(L)

Red chemiluminescence of molecular oxygen in aqueous solution, Ahsan Ullah Khan and Michael Kasha—2105(L)

Sensitivity of exchange-reaction probabilities to the potential-energy surface, Frederick T. Wall and Richard N. Porter—3112

Smooth curve approximation to the energy-level distribution for quantum harmonic oscillators, Everett Thiele—3258

Statistics of irreversible termination in homogeneous anionic polymerization, Bernard D. Coleman, Fred Gornick, and George Weiss—3233

Structural aspects of the kinetics of four-center reactions in the vapor phase, Sidney W. Benson and A. N. Bose—3463

Studies with a single-pulse shock tube. II. The thermal decomposition of perfluorocyclobutane, Assa Lifshitz, H. F. Carroll, and S. H. Bauer—1661

Study of moderately rapid chemical exchange reactions by means of nuclear magnetic double resonance, Sture Forsén and Ragnar A. Hoffman—2892

Theoretical considerations on carbon isotope effects in the decarboxylation of malonic acid, Marvin J. Stern and Max Wolfsberg—2776(L)

Unimolecular decomposition of chemically activated propyl radicals. Normal intermolecular secondary kinetic isotope effect, W. E. Falconer, B. S. Rabinovitch, and R. J. Cvetanović—40

Vacuum ultraviolet photochemistry. VII. Photolysis of *n*-butane, H. Okabe and D. A. Becker—2549

Vibrational energy distribution of molecular oxygen produced by the reaction of atomic oxygen with NO_2, R. A. Kane, J. J. McGarvey, and W. D. McGrath—840(L)

Viscosity dependence of the first-order decay of the triplet state of anthracene and related molecules, Robert Livingston and William R. Ware—2593

Large Molecules (see Polymers)

Light Scattering

Anisotropic scattering of light by isolated freely flexible linear macramolecules in amorphous matrix under strain, Hari L. Bhatongar—1612(L)

Liquids

Calculation of heats of vaporization and fusion of nonionic liquids from the rigid-sphere equation of state, S. J. Yosim and B. B. Owens—2222

Dielectric dispersion of a polar–nonpolar liquid mixture near the critical solution temperature, R. G. Quinn and C. P. Smyth—3285

Domains in liquid crystals, Richard Williams—384

Enhancement of fluorescence yield of rare-earth ions by heavy water, John L. Kropp and Maurice W. Windsor—2769(L)

Erratum and comment: The extension of Stokes' law of ionic motion to include the effect of dielectric relaxation, Richard H. Boyd [**35**, 1281 (1961)]—2376(L)

Hole theory of liquids and dense gases. II. Internal entropy, energy, and heat capacity, Douglas Henderson—54

Infrared spectra of highly associated liquids and the question of complex ions in fused salts, J. K. Wilmshurst—1779

Infrared spectra of molten salts, J. K. Wilmshurst—2545

Molal volumes and zero-point energies of the isotopic liquid hydrogens, Jacob Bigeleisen—1356(L)

Near-infrared studies of the structure of water. I. Pure water, K. Buijs and G. R. Choppin—2035

Near-infrared studies of the structure of water. II. Ionic solutions, G. R. Choppin and K. Buijs—2042

Near-ultraviolet, visible, and infrared spectra of molten KSCN and NaSCN, Jacob Greenberg—3158(L)

Quantum effects in liquid hydrogen, Jacob Bigeleisen—769

Raman spectrum and vibrational assignment for molten thallous nitrate, G. J. Janz, T. R. Kozlowski, and S. C. Wait—1809

Rotational correlation times for quadrupolar relaxation in liquids, D. E. O'Reilly and G. E. Schacher—1768

Significant structure theory of fluids for a system of rigid spheres, Douglas Henderson—1857

Some topics in the theory of fluids, B. Widom—2808

Structure of molten oxides. I. Viscosity of GeO_2, and binary germanates containing Li_2O, Na_2O, K_2O, and Rb_2O, E. F. Riebling—1889

Vapor–liquid equilibria of dilute solutions of HT in *e*-H_2 and DT in *e*-D_2 from the triple points to the critical temperatures of the solutions, Jacob Bigeleisen and Eugene C. Kerr—763

X-ray study of critical opalescence in argon, J. E. Thomas and Paul W. Schmidt—2506

Magnetic Cooling

Magnetic Resonance

Analysis of the electron spin resonance spectra of aromatic nitrosubstituted anion radicals, Philip H. Rieger and George K. Fraenkel—609

Anisotropic *g* tensor in polycrystalline derivatives of tetrachlorosemiquinone, Roger J. Faber and M. Patricia Faber—3541(L)

Anisotropy of the fluorine chemical shift tensor in xenon tetrafluoride, R. Blinc, I. Zupančić, S. Maričić, and Z. Veksli—2109(L)

Assignment of NMR spectra with the aid of double-quantum transitions, W. A. Anderson, R. Freeman, and C. A. Reilly—1518

Calculation of the electron spin resonance line shape of randomly oriented molecules in a triplet state. I. The Δm-2 transition with a constant linewidth, Philémon Kottis and Roland Lefebvre—393

Chemical shifts in xenon fluorides, D. Lazdins, C. W. Kern, and M. Karplus—1611(L)

Chemical shifts of the *meta* protons of some 2,4,6-trideuterated monoderivatives of benzene, F. Langenbucher, E. D. Schmid, and R. Mecke—1901(L)

Collision-narrowing technique for NMR studies of gases at moderate pressures, Louis G. Alexakos and C. D. Cornwell—1616(L)

Comments on the orientation of the proton–proton vectors of water in Tutton's salts, David H. Templeton, Allan Zalkin, and T. N. Margulis—3155(L)

Computation of unique NMR parameters for ABC systems with the aid of C^{13}–H satellite spectra, R. T. Hobgood, Jr., Ralph E. Mayo, and J. H. Goldstein—2501

Coordination numbers of beryllium and aluminum ions in aqueous solutions, Robert E. Connick and Daniel N. Fiat—1349(L)

Crystal structure change of sodium azide at 19°C, B. S. Miller and G. J. King—2779(L)

C^{13}–H and X–H coupling constants for compounds of the type $X(CH_3)_4$, George W. Smith—2031

Cyclotron resonance in slightly ionized gases, Fred C. Fehsenfeld—1653

Diamagnetic anisotropy effects of C≡C and C≡N bonds in nuclear magnetic resonance spectroscopy, G. S. Reddy and J. H. Goldstein—3509

Electron coupling of nuclear spins. VII. J_{FF} for 2-fluorobenzotrifluorides, H. S. Gutowsky and V. D. Mochel—1195

Electron paramagnetic resonance of a hydrazine radical ion, J. Q. Adams and J. R. Thomas—1904(L)

Electron paramagnetic resonance of naturally abundant N^{15} and S^{33} in peroxylamine disulfonate ion $[NO(SO_3)_2]^{=}$, J. J. Windle and A. K. Wiersema—1139(L)

Electron-spin density in irradiated oriented polyethylene, Jiro Higuchi—2366

Electron spin resonance in ethylenediamine complexes of copper (II) sulfate, R. Rajan and T. Ramasubba Reddy—1140(L)

Electron spin resonance of a radical in irradiated single crystals of itaconic acid, Minoru Fujimoto—846(L)

Electron spin resonance of irradiated DNA, R. Salovey, R. G. Shulman, and W. M. Walsh, Jr.—839(L)

Electron spin resonance of irradiated KH_2PO_4 and KD_2PO_4, W. E. Hughes and W. G. Moulton—1359(L)

Electron spin resonance of some arylsulfenyl radicals, P. J. Zandstra and J. D. Michaelsen—933

Electron spin resonance spectra of cyclic ketyls and *ortho*-semiquinones, Ronald Dehl and George K. Fraenkel—1793

Electron spin resonance spectrum of XeF in γ-irradiated xenon tetrafluoride, J. R. Morton and W. E. Falconer—427

Electron-spin resonance studies of irradiated glasses containing boron, Sook Lee and P. J. Bray—2863

Electron spin resonance studies of transient alkyl radicals, Richard W. Fessenden and Robert H. Schuler—2147

Electron spin resonance study of some organic photoconductors, B.-Y. Cho, R. C. Nelson, and L. C. Brown—499

Electron spin resonance study of the anion radicals of *cis*- and *trans*-thianthrene-5,10-dioxide, E. T. Kaiser and D. H. Eargle, Jr.—1353(L)

Electron transfer in dilute gold alloys, P. H. Barrett, R. W. Grant, Morton Kaplan, D. A. Keller, and D. A. Shirley—1035

EPR spectra of SH, SD, and SO radicals in the gaseous state, C. C. McDonald—2587

EPR study o. impurity-related color centers in germanium-doped quartz, John H. Mackey, Jr.—74

Erratum: High-resolution NMR spectrum of 1,2-benzanthracene, J. D. Memory and Thomas B. Cobb [**38**, 1453 (1963)]—3155(L)

Erratum: Nuclear magnetic resonance studies of electron transfer between tris(2,2′-dipyridyl)osmium(II) and (III) ions, between bis(cyclopentadienyl)iron(II) and (III) ion, and between tris(1,10-phenanthroline)iron(II) and (III) ions, M. W. Dietrich and A. C. Wahl [**38**, 1591 (1963)]—2376(L)

ESR measurement of spin susceptibility of graphite in a low magnetic field, R. C. Wayne and R. M. Cotts—1337

ESR of the N_2F_4–NF_2 equilibrium, H. E. Doorenbos and B. R. Loy—2393(L)

ESR study of free radicals produced in irradiated cyclopentadiene and cyclohexene: the cyclopentadienyl and cyclohexenyl radicals, Shun-ichi Ohnishi and Isamu Nitta—2848

ESR study of polyazine anions, Ellery W. Stone and August H. Maki—1635

Exciton magnetic resonance in Wurster's blue perchlorate, D. D. Thomas, H. Keller, and H. M. McConnell—2321

Extension of the Johnson-Waugh analysis of NMR relaxation in H_2 in terms of the anisotropic part of the intermolecular potential, G. Gioumousis—1620(L)

Ferromagnetism in solid free radicals, Harden M. McConnell—1910(L)

g-factor and Knight shift in p-type lead telluride, I. Weinberg—492(L)

High-resolution ESR spectra of photochemically generated free radicals: the viologens, C. S. Johnson, Jr., and H. S. Gutowsky—58

High-resolution NMR spectrum of chrysene, J. D. Memory and Thomas B. Cobb—2386(L)

Homonuclear decoupling: P^{31}–P^{31}, H. Agahigian, G. D. Vickers, J. Roscoe, and J. Bishop—1621(L)

Hyperfine electron spin resonance spectrum of the NH_2 free radical, Brian T. Sutcliffe—3322

Indirect detection of weak or hidden nuclear magnetic resonance signals, R. Freeman and W. A. Anderson—806

Intramolecular electron transfer in bis(p-nitrophenyl) anions and its effect on electron spin resonance hyperfine structure, John E. Harriman and August H. Maki—778

Investigation of the bonding of iron-group ions in fluoride crystals. II, T. P. P. Hall, W. Hayes, R. W. H. Stevenson, and J. Wilkens—35

Isotropic NMR shifts in pyridine-type bases complexed with paramagnetic Ni^{II} and Co^{II} acetylacetonates, James A. Happe and Raymond L. Ward—1211

Isotropic proton hyperfine interaction and properties of the CH bond, Jiro Higuchi—3455

Linear antiferromagnetism in the organic free radical 1,3-bis-diphenylene-2-phenyl allyl, W. O. Hamilton and G. E. Pake—2694

Magnetic resonance of Mn^{2+}-doped LiF crystals, T. T. Chang, W. H. Tanttila, and J. S. Wells—2453

Method for the analysis of high-resolution NMR spectra employing transitory selective saturation, Ragnar A. Hoffman, Bo Gestblom, and Sture Forsén—486(L)

Molecular orbital calculations of spin densities in the diketopiperazyl radical, W. C. Lin and C. A. McDowell—848(L)

Mössbauer studies of iron organometallic complexes. I. Iron tetracarbonyl complexes, R. L. Collins and R. Pettit—3433

Motion of the H_2O molecule in barium chlorate monohydrate, J. W. McGrath and A. A. Silvidi—3017

Multiple-quantum transitions in EPR spectra of atomic oxygen, C. C. McDonald—3159(L)

Nitrogen NMR chemical shifts in the azide ion, R. A. Forman—2393(L)

NMR in hydrate crystals: structural information from second moments, Bjørn Pedersen—720

NMR shift and diffusion study of electrolytes in 50% dioxane–water mixtures, Anthony Fratiello and Dean C. Douglass—2017

NMR studies of hydrated sodium tetraborate minerals. II. Na^{23} sites in borax and tincalconite, J. D. Cuthbert and H. E. Petch—1247

NMR studies of phase transitions. I. NaSH, C. K. Coogan, Geneva G. Belford, and H. S. Gutowsky—3061

NMR study of the alkali hexafluorophosphates' dynamic structure, Gerald R. Miller and H. S. Gutowsky—1983

NMR study of the protolysis kinetics in simple amino acids. II. Sarcosine (the Zwitterion form), M. Sheinblatt—2005

Note on the exact analysis of three-spin systems, J. R. Cavanaugh—2378(L)

Nuclear isomer shift and covalency in iron complexes, J. Danon—236(L)

Nuclear magnetic relaxation and diffusion in liquid CH_4, CF_4, and mixtures of CH_4 and CF_4 with argon, John H. Rugheimer and Paul S. Hubbard—552

Nuclear magnetic relaxation and diffusion in liquid SF_6, William R. Hackleman and Paul S. Hubbard—2688

Nuclear magnetic resonance and molecular motion in the benzene–silver perchlorate complex, D. F. R. Gilson and C. A. McDowell—1825

Nuclear magnetic resonance study of the protolysis of trimethylammonium ion in aqueous solution—order of the reaction with respect to solvent, Z. Luz and S. Meiboom—366

Nuclear magnetic shielding constants and x-ray atomic scattering factors for two-, three-, and four-electron systems by means of analytic Hartree-Fock wavefunctions, M. L. Rustgi and P. Tiwari—2590
Nuclear relaxation in molecular liquids containing free radicals, H. S. Gutowsky and Julia Chow Tai—208
Nuclear spin–spin coupling involving heavy nuclei. The coupling between Hg^{199} and H^1 nuclei in CH_3HgX and CH_3CH_2HgX compounds, J. V. Hatton, W. G. Schneider, and W. Siebrand—1330
Nuclear transverse relaxation in electron-transfer reactions, Charles S. Johnson, Jr.—2111
Paramagnetic defects in irradiated CaO, Alexander J. Shuskus—849(L)
Paramagnetic resonance measurements of the phosphorescent state of quinoxaline, James S. Vincent and August H. Maki—3088
Paramagnetic resonance of nitrogen atoms in x-ray-irradiated sodium azide, Frederick F. Carlson—1206
Photoinduced free-radical ion formation from some charge transfer complexes, Raymond L. Ward—852(L)
Polymer NMR spectroscopy. X. The use of H^1–H^1 spin decoupling in the elucidation of polymer structure, F. A. Bovey, E. W. Anderson, D. C. Douglass, and J. A. Manson—1199
Proton chemical shifts in polysubstituted benzenes, John S. Martin and B. P. Dailey—1722
Proton NMR chemical shifts of hydronium and hydroxyl ions, A. J. Kresge—1360(L)
Proton NMR studies of CHDO and CH_2O, B. L. Shapiro, R. M. Kopchik, and S. J. Ebersole—3154(L)
Proton relaxation in deuterated solutions of asphalt, Edward H. Poindexter—2772(L)
Proton spin–spin coupling constants from the NMR spectra of paramagnetic molecules, D. R. Eaton, A. D. Josey, W. D. Phillips, and R. E. Benson—3513
Rate of exchange of halide nuclei with mercury (II) in aqueous solution, D. E. O'Reilly, G. E. Schracher, and K. Schug—1756
Removal of residual splitting in nuclear magnetic double resonance, W. A. Anderson and F. A. Nelson—183
Rotational correlation times for quadrupolar relaxation in liquids, D. E. O'Reilly and G. E. Schacher—1768
Rotational transition and self-diffusion in polycrystalline succinonitrile, L. Petrakis and A. Rao—1633
Second moments of electron spin resonance proton hyperfine spectra, Gershon Vincow and Philip M. Johnson—1143
Structure of the ion pairs of anilinium salts in solution determined by NMR, Gideon Fraenkel—1614(L)
Study of moderately rapid chemical exchange reactions by means of nuclear magnetic double resonance, Sture Forsén and Ragnar A. Hoffman—2892
Sulfur and silicon isotope effects in fluorine nuclear magnetic resonance spectroscopy, R. J. Gillespie and J. W. Quail—2555
Temperature and pressure dependence of the Co^{59} nuclear resonance chemical shift, George B. Benedek, Robert Englman, and John A. Armstrong—3349
Temperature dependence of fluorine nuclear spin–spin coupling constants, Wallace S. Brey, Jr., and K. C. Ramey—844(L)
Temperature dependences of nuclear-transfer and spin-relaxation phenomena of water adsorbed on silica gel, D. E. Woessner—2783
Theory of linewidths in electron spin resonance spectra, Jack H. Freed and George K. Fraenkel—326
Time-weighted-average approximation in the NMR spectrum of $CF_2BrCFBrCl$, R. A. Newmark and C. H. Sederholm—3131
Torsional oscillation of methylene groups in free radicals studied by ESR, Michio Kashiwagi and Yukio Kurita—3165(L)
Transition probabilities in a dipole-coupled system of protons and delocalized electrons, Edward H. Poindexter—1860
Use of the nuclear Overhauser effect in the analysis of high-resolution nuclear magnetic resonance spectra, Reinhold Kaiser—2435
Volume magnetic susceptibility measurements by NMR, Dean C. Douglass and Anthony Fratiello—3161(L)
Zero-field splittings in some triplet-state aromatic molecules, Ying-Nan Chiu—2736

Magnetic Susceptibilities

Analytical expressions for potentials of neutral Thomas-Fermi-Dirac atoms and for the corresponding atomic scattering factors for x rays and electrons, R. A. Bonham and T. G. Strand—2200
Antiferromagnetic and crystal structure of lithium cupric chloride dihydrate, S. C. Abrahams and H. J. Williams—2923
Antiferromagnetism of $UO_2 \cdot 2H_2O$, Titus Pankey, Frank E. Senftle, and Frank Cuttitta—1702
Cation distributions in nonstoichiometric magnesium ferrite, R. L. Mozzi and A. E. Paladino—435
Correlation of magnetothermodynamic data with a theoretical model. Powdered $CoSO_4 \cdot 7H_2O$ over the range 0 to 100 kG above 1.2°K, R. A. Fisher and E. W. Hornung—939
ESR measurement of spin susceptibility of graphite in a low magnetic field, R. C. Wayne and R. M. Cotts—1337
Ferromagnetism in solid free radicals, Harden M. McConnell—1910(L)
Heat capacity of $MnBr_2$ between 1.7° and 20°K. Magnetic ordering in $MnBr_2$, Wayne B. Hadley and J. W. Stout—2205
Linear antiferromagnetism in the organic free radical 1,3-bis-diphenylene-2-phenyl allyl, W. O. Hamilton and G. E. Pake—2694
Magnetic characteristics of dysprosium, erbium, and thulium hydrides, Yoshio Kubota and W. E. Wallace—1285
Magnetic characteristics of Tb–Y and Ho–Y solid solutions, Sidney Weinstein, R. S. Craig, and W. E. Wallace—1449
Magnetic susceptibility of partially oxidized copper films at 25°C, A. W. Czanderna and H. Wieder—489(L)
Oxygen contamination and "pure" manganese sulfide, R. D. Archer and W. N. Mitchell—250(L)
Structural and magnetic characteristics of $TiFe_2$-$ZrFe_2$ and $ZrCo_2$-$ZrFe_2$ alloys, E. Piegger and R. S. Craig—137
Volume magnetic susceptibility measurements by NMR, Dean C. Douglass and Anthony Fratiello—3161(L)

Mass Spectra

Cross sections for some gas-phase single-charge-transfer reactions of N_2^{++} and Ar^{++}, E. R. Weiner, G. R. Hertel, and W. S. Koski—3538(L)
Cross sections of ion–permanent-dipole reactions by mass spectrometry, Thomas F. Moran and William H. Hamill—1413

Determination of the geometry of lithium oxide, $Li_2O(g)$, by electric deflection, Alfred Büchler, James L. Stauffer, William Klemperer, and Lennard Wharton—2299
Dissociation energies of some metal sulfides, J. R. Marquart and J. Berkowitz—283
Dissociative charge-exchange reactions of rare-gas ions with propane, Jean H. Futrell and Thomas O. Tiernan—2539
Dissociative charge transfer in He^+–O_2 and He^+–N_2 collisions, R. F. Stebbings, A. C. H. Smith, and Helmut Ehrhardt—968
Dissociative ionization of CO by ion impact, Clayton F. Giese and William B. Maier, II—197
Effect of additives on the ionic reaction mechanism in the radiolysis of methane, P. Ausloos, S. G. Lias, and R. Gorden, Jr.—3341
Effects of isotopic labeling and molecular structure on probability of ionization by electron impact, Seymour Meyerson, H. M. Grubb, and R. W. Vander Haar—1445
Energy dependence of cross sections for ion–molecule reactions. Transfer of hydrogen atoms and hydrogen ions, Clayton F. Giese and William B. Maier, II—739
Equilibrium composition of sulfur vapor, J. Berkowitz and J. R. Marquart—275
Formation of negative ions in $SbCl_5$, Victor E. Grob—972
Fragmentation of the excited parent ions, $[CH_3Kr^{82}]^+$ and $[CH_3O^{18}]^-$, following the β^- decay of CH_3Br^{82} and the β^+ decay of CH_3F^{18}, Thomas A. Carlson and R. Milford Shite—1748
Gaseous metaborates. I. Mass-spectrometric study of the vaporization of lithium and sodium metaborates, Alfred Büchler and Joan B. Berkowitz-Mattuck—286
Infrared spectra, and the structures and thermodynamics of gaseous LiO, Li_2O, and Li_2O_2, David White, K. S. Seshadri, D. F. Dever, D. E. Mann, and M. J. Linevsky—2463
Ion-molecule reactions in gaseous ammonia, G. A. W. Derwish, A. Galli, A. Giardini-Guidoni, and G. G. Volpi—1599
Ion–molecule reactions leading to NO^+ formation, A. Galli, A. Giardini-Guidoni, and G. G. Volpi—518
Ionization on tungsten single-crystal surfaces, F. L. Reynolds—1107
Ionization potentials of doubly charged oxygen and nitrogen, F. H. Dorman and J. D. Morrison—1906(L)
Mass spectra and appearance potentials of diazirine and diazomethane, Grover S. Paulett and Raymond Ettinger—825; erratum—3534(L)
Mass spectra and metastable transitions of H_2S, HDS, and D_2S, Vernon H. Dibeler and H. M. Rosenstock—3106
Mass spectral studies of kinetics behind shock waves. I. Thermal dissociation of chlorine, R. W. Diesen and W. J. Felmlee—2115
Mass spectral studies of kinetics behind shock waves. II. Thermal decomposition of hydrazine, R. W. Diesen—2121
Mass spectrometric detection of polymers in supersonic molecular beams, Frank T. Greene and Thomas A. Milne—3150(L)
Mass-spectrometric investigation of the oxidation of molybdenum and tungsten, Joan B. Berkowitz-Mattuck, Alfred Büchler, John L. Engelke, and Steven N. Goldstein—2722
Mass-spectrometric study of ions from the α-particle irradiation of gases at near atmospheric pressures, P. Kebarle and E. W. Godbole—1131(L)
Mass spectrometric study of positive-ion emission from iron oxide catalysts containing alkali metals, Toshikazu Tsuchiya—828
Metastable transitions in mass spectra of methane and the deuteromethanes, Vernon H. Dibeler and Henry M. Rosenstock—1326
Methane–tritium system. I. Mass spectra of tritium-substituted methanes, Richard J. Kandel—2581
Neon–hydrogen ion-molecule reactions, T. F. Moran and L. Friedman—2491
On the optimum use of ionization-efficiency data, J. D. Morrison—200
Reaction rates of hydrogen, ammonia, and methane with mixtures of atomic and molecular oxygen, Edgar L. Wong and A. E. Potter, Jr.—2211
Rearrangement processes for forming oxonium ions from aliphatic ester ions, R. R. Bernecker and F. A. Long—253(L)
Transpiration and mass spectrometric studies of equilibria involving BOF(g) and $(BOF)_3(g)$, Donald L. Hildenbrand, Lowell P. Theard, and Albert M. Saul—1973

Mechanics, Classical

General equation for the mean electrical energy of a dielectric body in an alternating electrical field, Gerhard Schwarz—2387(L)
Sensitivity of exchange-reaction probabilities to the potential-energy surface, Frederick T. Wall and Richard N. Porter—3112
Trapping and energy transfer in atomic collisions with a crystal surface. II. Impurities, Bruce McCarroll—1317

Mechanics, Quantum

An extended Hückel theory. I. Hydrocarbons, Roald Hoffmann—1397
Analogies between higher-order analytical and numerical perturbation-iteration methods, R. A. Sack—3275
Analysis of the electron spin resonance spectra of aromatic nitrosubstituted anion radicals, Philip H. Rieger and George K. Fraenkel—609
Analysis of the electronic spectra of neodymium ethylsulfate, John B. Gruber and Robert A. Satten—1455
Analysis of the spectrum of d^3 ions in trigonal crystal fields, R. M. Macfarlane—3118
Analytical expressions for potentials of neutral Thomas–Fermi–Dirac atoms and for the corresponding atomic scattering factors for x rays and electrons, R. A. Bonham and T. G. Strand—2200
Analytical method for the approximate determination of the eigenfunctions and energies of electrons in Thomas–Fermi atoms, T. Tietz—1908(L)
Application of configuration interaction to the $2\,^3S$ state of helium. II, H. L. Davis—1183
Application of the second-order WBK approximation to radial problems, Charles L. Beckel and Jamil Nakhleh—94
Approximate expression for the tunnelling correction, H. Shin—2934
Approximate quantum-mechanical law of corresponding states, Irwin Oppenheim—2771(L)
Assignment of NMR spectra with the aid of double-quantum transitions, W. A. Anderson, R. Freeman, and C. A. Reilly—1518
Atomic calculations. II. Polarizabilities and London force constants for F^-, Ne, and Na, Wilm E. Donath—2685

"Bond-orbital" and "modified electron-pair" calculations on the ammonia molecule, Atsushi Tsuchida and Kimio Ohno—600

Calculation of exact eigenfunctions of spin and orbital angular momentum using the projection operator method, A. Rotenberg—512

Calculation of London-van der Waals energies, Jeremy I. Musher—2409

Calculation of the barrier to internal rotation in ethane, Russell M. Pitzer and William N. Lipscomb—1995

Calculation of the electron spin resonance line shape of randomly oriented molecules in a triplet state. I. The Δm-2 transition with a constant linewidth, Philémon Kottis and Roland Lefebvre—393

Calculation of x-ray and electron intensities scattered by the NH_3 and H_2O molecules, Claude Tavard, Marcel Rouault, Monique Roux, and Marguerite Cornille—2390(L)

Calculations of the hyperfine splitting for the lithium atom, J. B. Martin and A. W. Weiss—1618(L)

Carbon $2p_z$ multiple-center dipolar interaction integrals in the matrix element over LCAO molecular orbitals, Ying-Nan Chiu—2749

Charge densities in atoms, Erich Steiner—2365

Chemical shifts in xenon fluorides, D. Lazdins, C. W. Kern, and M. Karplus—1611(L)

Classification of rotational energy levels. II, Jon T. Hougen—358

Comparison of the Hartree–Fock orbital with the first natural spin orbital for two-electron systems, George V. Nazaroff and Joseph O. Hirschfelder—715; erratum—3155(L)

Continuous representations in the statistical theory of electronic energies, Sidney Golden and George S. Handler—1543

Correlation effects in the alternant molecular orbital approximation, William H. Adams—23

Correlation energy for atomic systems. II. Isoelectronic series with 11 to 18 electrons, Enrico Clementi—175

Correlation energy in the CH_4 molecule, Enrico Clementi—487(L)

Criterion for ordering the bond strengths of neutral and positively charged hydrides, R. E. Stanton—2368

Cyclotron resonance in slightly ionized gases, Fred C. Fehsenfeld—1653

Dielectric constant and interactions of polar molecules, Robert H. Cole—2602

Dissociation of H_2 and other diatomic molecules by neutron bombardment, W. W. Clendenin—2283

Do the "ligand field" parameters in lanthanides represent weak covalent bonding? Chr. Klixbüll Jørgensen, Romano Pappalardo, and Hans-Herbert Schmidtke—1422

Electric moments and molecular orbitals for methane, W. T. King—2141

Electric polarizability of some diatomic molecules, H. J. Kolker and M. Karplus—2011

Electron mobility in crystals, Marshall Fixman—1813

Electron spin–spin interaction in higher molecular spin multiplets, Jiro Higuchi—1847

Electron structure of LiH and quadrupole moment of Li^7, S. L. Kahalas and R. K. Nesbet—529

Electronic bases of molecular vibrations. I. General theory for diatomic molecules, Paul Phillipson—3010

Electronic wavefunction for the ground state of methane, John J. Sinai—1575

Electrostatic contribution to the energy of the hydrogen bond in hydrogen fluoride dimer. I. Utilizing approximate evaluation of multicenter integrals, Bentz B. Howard—2524

Energy of the lithium atom by the least-squares local energy method, B. M. Gimarc and A. A. Frost—1698

Errata: Triplet–triplet annihilation and delayed fluorescence in molecular aggregates; errata and comments concerning ruby-laser-induced fluorescence in anthracene crystals, H. Sternlicht, G. C. Nieman, and G. W. Robinson [**38**, 1326 (1963)]—1610(L)

Erratum: Asymmetric-top vibration–rotation Hamiltonians, K. T. Chung and Paul M. Parker [**38**, 8 (1963)]—240(L)

Erratum: Electronic structure of ammonia, A. B. F. Duncan [**27**, 423 (1957)]—240(L)

Erratum: Nuclear moments and intermediate coupling, B. G. Wybourne [**37**, 1807 (1962)]—240(L)

Erratum: Wavefunctions and correlation energies for F, F^-, and Ne, L. L. Lohr, Jr., and Leland C. Allen [**34**, 1156 1961)]—2106(L)

External heavy-atom spin–orbital coupling effect. IV. Intersystem crossing, S. P. McGlynn, J. Daigre, and F. J. Smith—675

Fermion behavior of one-dimensional excitons, D. B. Chesnut and A. Suna—146

Force calculation with Hartree–Fock wavefunctions, Jerry Goodisman—2397(L)

Gaussian expansion of hydrogen-atom wavefunctions, Jerry L. Whitten—349

Generation of charge carriers in organic molecular crystals through multiple exciton interactions, David R. Kearns—2697

HFS constants of OH ground state, Kunifusa Kayama—1507

Hyperfine electron spin resonance spectrum of the NH_2 free radical, Brian T. Sutcliffe—3322

Improved calculation of quasiequilibrium reaction rate constants, S. H. Lin and Henry Eyring—1577

Interaction energies and transport coefficients of Li+H and O+H gas mixtures at high temperatures, Paul H. Krupenie, Edward A. Mason, and Joseph T. Vanderslice—2399

Interactions in polar media. II. Continua, R. A. Marcus—460

Ion radicals of methyl-substituted benzenes: temperature dependence of spin and charge densities, Thomas H. Brown and Martin Karplus—1115

Isotope shifts in the 2^1P and 2^3P states of He and Li^+ systems, Milos Machacek and Charles W. Scherr—3151(L)

Isotropic proton hyperfine interaction and properties of the CH bond, Jiro Higuchi—3455

Iteration-variation procedures for quantum-mechanical perturbations, Joseph O. Hirschfelder—2099

Jahn–Teller effect and valence bond method, Joseph L. Birman—3147

Modification to the Newton–Raphson method for the fitting of nonlinear functions by least squares, T. G. Strand, D. A. Kohl, and R. A. Bonham—1307

Molecular orbital calculations of spin densities in the diketopiperazyl radical, W. C. Lin and C. A. McDowell—848(L)

Molecular orbital studies of excited states of HeH, H. H. Michels and F. E. Harris—1464

Molecular orbital study of nonadditive substituent effects, John S. Martin—1728

Molecular orbital study of the $B\ ^1\Sigma_u^+$ and $^3\Sigma_u^+$ states of the hydrogen molecule, Howard S. Taylor—3375

Molecular rotation in the solid state. Theory of rotation of trapped molecules in rare-gas lattices, W. H. Flygare—2263
Natural expansions of exact wavefunctions. III. The helium-atom ground state, Ernest R. Davidson—875
Nonadiabatic effects in the high-energy scattering of normal helium atoms, Walter R. Thorson—1431
Nonuniform scaling of an approximate H_3^+ wavefunction, William J. Meath and Joseph O. Hirschfelder—1135(L); erratum—3534(L)
Note concerning the elastic scattering of low-energy electrons in Thomas–Fermi theory, T. Tietz and C. Malinowska—2778(L)
Nuclear magnetic shielding constants and x-ray atomic scattering factors for two-, three-, and four-electron systems by means of analytic Hartree–Fock wavefunctions, M. L. Rustgi and P. Tiwari—2590
Obtaining Hartree–Fock orbitals from a many-electron trial wavefunction, Neil R. Kestner—1361(L)
On induced transitions and line shifts in the rotation–vibration spectra of pressurized diatomic gases, Ramesh D. Sharma and George C. Turrell—2638
On numerical calculations by the Hellmann–Feynman procedure, L. Salem and M. Alexander—2994
On the calculation of some atomic integrals containing functions of r_{12}, r_{13}, and r_{23}, Yngve Öhrn and Jan Nordling—1864
On the effect of the bond angle in the electron spin–spin interaction. Methylene derivatives, Jiro Higuchi—1339
On the evaluation of some dipole velocity integrals, G. Wagnière and H. Labhart—2386(L)
On the excess electron and hole band structures and carrier mobility in naphthalene, anthracene, and several polyphenyls, Joseph L. Katz, Stuart A. Rice, Sang-il Choi, and Joshua Jortner—1683
On the nature of the crystal field approximation. II. Numerical results, R. T. Berger and C. M. Herzfeld—1122
On the recalculation of the potential curves for the ground states of I_2 and H_2, Stanley Weissman, Joseph T. Vanderslice, and Rubin Battino—2226
On the theory of torsional vibrations of $(CH_3)_3$–X type molecules, K. D. Möller and H. G. Andresen—17
One-center perturbation approach to molecular electronic energies. I. Exposition of the method, Peter Hauk, Robert G. Parr, and Hendrik F. Hameka—2085
Open-shell SCF triplet-state energies of polyacenes, Lionel Goodman and James R. Hoyland—1068
Optimized single-configuration wavefunction for the ground state of lithium fluoride, A. D. McLean—2653
Oscillators perturbed by Gaussian barriers, Sunney I. Chan and David Stelman—545
Perturbation theory and the Hellmann–Feynman theorem, Robert Yaris—863
Pi electronic structure of the benzene molecule, J. W. Moskowitz and M. P. Barnett—1557
Potential curve for the $^2\Sigma_u^+$ state of H_2^-, Howard S. Taylor and F. E. Harris—1012
Potential-energy curve of the lowest-lying triplet sigma state of lithium hydride, Howard S. Taylor—3382
Predissociation, Robert A. Harris—978
Quadrupole antishielding in the rare earths, Johan Blok and D. A. Shirley—1128(L)
Radial limit in the configuration-interaction method for the 1^1S state of the helium isoelectronic sequence, H. L. Davis—1827
Relation of Sinanoğlu's theory of "exact pairs" to the first iteration, beyond SCF, in separated-pair theory, Clyde Edmiston—2394(L)
Relative partial wave theory of diatomic molecules, A. Temkin—161
Removal of electron–electron poles from many-electron Hamiltonians, Joseph O. Hirschfelder—3145
Removal of orbital degeneracy in an asymmetric molecular environment, M. Brith and O. Schnepp—2714
Resolution of exact H_2^+ wavefunction on one-center hydrogenic basis, Seth Boorstein and Jerry Goodisman—479
Rotational dependency of the Stark effect of a polar diatomic molecule, L. Wharton and W. Klemperer—1881
Second moments of electron spin resonance proton hyperfine spectra, Gershon Vincow and Philip M. Johnson—1143
Self-consistent-field wavefunctions for the N_3^- and NO_2^+ molecules, Enrico Clementi and A. D. McLean—323
Semiempirical calculation on the lower electronic states of the benzene molecule, Tosinobu Anno and Akira Sado—2293
Smooth curve approximation to the energy-level distribution for quantum harmonic oscillators, Everett Thiele—3258
Some analytic solutions of the Hartree–Fock equations by an iterative least-squares method, A. L. Merts and M. D. Torrey—694
Spectrum of Er^{3+} in $LaCl_3$, J. C. Eisenstein—2128
Spectrum of Nd^{3+} in $LaCl_3$, J. C. Eisenstein—2134
Spin–orbit interactions in molecular radicals, Sivert H. Glarum—3141
SPO (split-p-orbital) method. IV. Calculations for the $(2p)^2$ state of helium, Michael J. S. Dewar and Alice L. H. Chung—1741
Studies on the alternant molecular orbital method. V. A many-parameter energy expression for states with different multiplicities; application to benzene, J. de Heer and R. Pauncz—2314
Testing of diatomic potential-energy functions by numerical methods, J. K. Cashion—1872
Theory for zero-field splittings in aromatic hydrocarbons. III, Seth Alan Boorstein and Martin Gouterman—2443
Theory of linewidths in electron spin resonance spectra, Jack H. Freed and George K. Fraenkel—326
Theory of the thermal accommodation coefficients of a diatomic gas, P. Feuer—1311
Tight-binding wavefunctions for electrons in molecular crystals in the presence of an electric field, R. E. Merrifield—3540(L)
Time-dependent perturbation–variation method, Robert Yaris—2474
Time-dependent variation-perturbation method for many-electron systems, M. Karplus and H. J. Kolker—2997
Transition probabilities in a dipole-coupled system of protons and delocalized electrons, Edward H. Poindexter—1860
Triplet exciton bands in aromatic crystals, Joseph L. Katz, Joshua Jortner, Sang-il Choi, and Stuart A. Rice—1897(L)
Truncated reaction operators, William J. Meath, Kenneth M. Sando, S. Osvaldo Goscinski, and Joseph O. Hirschfelder—2429
Two assumptions in the theory of attractive forces between long saturated chains, Robert Zwanzig—2251

Two-center integrals over solid spherical harmonics, Murray Geller—84
Two-electron, one- and two-center integrals, Murray Geller—853(L)
Unitary operator formalism of the eigenvalue problems, Joseph C. Y. Chen—3167
Upper and lower bounds for ground-state second-order perturbation energy, Stephen Prager and Joseph O. Hirschfelder—3289
Use of Gaussian functions in the calculation of wavefunctions for small molecules. I. Preliminary investigations, C. M. Reeves—1
Use of Gaussian functions in the calculation of wavefunctions for small molecules. II. The ammonia molecule, C. M. Reeves and M. C. Harrison—11
Use of rescaled eigenfunctions as variational wavefunctions in calculations on atoms and ions, Frank O. Ellison and Norman T. Huff—2051
Variation-perturbation approach to the interaction of radiation with atoms and molecules, M. Karplus and H. J. Kolker—1493
Variational calculations of some S states in two-electron atoms, J. F. Perkins—687
Vibrational analysis of the Heitler-London potential of H_2, Charles L. Beckel—90
Vibrational energy levels for an SCF wavefunction of the hydrogen molecule, Gerard M. Leies—1137(L)
Vibrational energy levels of ionic molecules bound by classical forces, Edward J. Finn—2423
Vibronic interactions in the exciton theory for molecular crystals, E. G. McRae—2974
Zero-field splitting in $3d^8$ ions, A. S. Chakravarty—1004
Zero-field splittings in some triplet-state aromatic molecules, Ying-Nan Chiu—2736

Mechanics, Statistical

Antiferromagnetic spherical Ising model and some properties of the associated lattice gas, Robert M. Mazo—2196
Approximate quantum-mechanical law of corresponding states, Irwin Oppenheim—2771(L)
Boltzmann equation and inverse collisions. II. A model for association and dissociation, James T. O'Toole and John S. Dahler—3214
Calculation of heats of vaporization and fusion of nonionic liquids from the rigid-sphere equation of state, S. J. Yosim and B. B. Owens—2222
Centrifugal distortion corrections to calculated thermodynamic functions, Robin S. McDowell—526
Conformal ionic mixtures, Milton Blander and S. J. Yosim—2610
Copolymerization as a Markov chain, H. Karl Frensdorff and Rudolph Pariser—2303
Electron mobility in crystals, Marshall Fixman—1813
Equation of state for hard spheres, Everett Thiele—474
Erratum: Monte Carlo study of coiling molecules. II, F. T. Wall, S. Windwer, and P. J. Gans [**38**, 2228 (1963)]—1900(L)
First-order phase transition in a gas of long thin rods, Robert Zwanzig—1714
Formal kinetic theory of transport phenomena in polyatomic gas mixtures, L. Monchick, K. S. Yun, and E. A. Mason—654
Free energy of a system with random elements, Robert M. Mazo—1224
Free energy of nonequilibrium polarization systems. III. Statistical mechanics of homogeneous and electrode systems, R. A. Marcus—1734
Hole theory of liquids and dense gases. II. Internal entropy, energy, and heat capacity, Douglas Henderson—54
Influence of molecular quadrupole moments on the second virial coefficient, Ronald H. Orcutt—605
Irreducible cluster integrals of hard-sphere gases, Shigetoshi Katsura and Yutaka Abe—2068
Kinetics of three-body atom recombination, C. B. Kretschmer and H. L. Petersen—1772
Low-temperature limiting behavior of gas imperfections due to gas–solid interactions, Robert S. Hansen and James A. Murphy—1642
Molal volumes and zero-point energies of the isotopic liquid hydrogens, Jacob Bigeleisen—1356(L)
Molecular weight distribution of linear polymers from stress relaxation in polymer melts, Warner L. Peticolas—3392
Monte Carlo calculations. III. A general study of bimolecular exchange reactions, Normand C. Blais and Don K. Bunker—315
Monte Carlo calculations for the two-dimensional triangular lattice gas: supercritical region, Dwayne A. Chesnut—2081
Numerical solutions of the convolution-hypernetted chain integral equation for the pair correlation function of a fluid. I. The Lennard-Jones (12, 6) potential, Max Klein and M. S. Green—1367
Numerical solutions of the convolution-hypernetted chain integral equation for the pair correlation function of a fluid. II. The hard-sphere potential, Max Klein—1388
On the kinetic theory of dense fluids. XIV. Experimental and theoretical studies of thermal conductivity in liquid Ar, Ke, Xe, and CH_4, Lynn D. Ikenberry and Stuart A. Rice—1561
On the thermodynamics of the critical region for the Ising problem, G. S. Rushbrooke—842(L)
Quantum effects in liquid hydrogen, Jacob Bigeleisen—769
Self-avoiding walks on the simple cubic lattice, M. F. Sykes—410
Significant structure theory of fluids for a system of rigid spheres, Douglas Henderson—1857
Some topics in the theory of fluids, B. Widom—2808
Statistical mechanical theory of double-layer structure and properties, Frank P. Buff and Frank H. Stillinger, Jr.—1911
Statistical mechanics of cross-linked polymers: formation of the infinite network, Horst Brodowsky and Stephen Prager—1103
Statistical mechanics of nonspherical molecules, William A. Steele—3197
Theory of the effects of concentration and chain length on helix-coil equilibria in two-stranded nucleic acids, Jon Applequist and Vinayak Damle—2719
Theory of the single-ion heat of transport in nonisothermal electrolytic solutions, Richard J. Bearman and V. S. Vaidhyanathan—3411
Two assumptions in the theory of attractive forces between long saturated chains, Robert Zwanzig—2251
Virial coefficients for square-well potentials, E. Hiis Hauge—389

Metals

Electron transfer in dilute gold alloys, P. H. Barrett, R. W. Grant, Morton Kaplan, D. A. Keller, and D. A. Shirley—1035

Hysteresis in the palladium–hydrogen system, N. A. Scholtus and W. Keith Hall—868

Microwave Spectra (see Absorption Spectra)

Molecular Films (see Surface Phenomena)

Molecular Interactions

Forces in molecules. III. Analysis of an empirical potential function, William L. Clinton and Sandra D. Frattali—3316

Potential-energy curve of the lowest-lying triplet sigma state of lithium hydride, Howard S. Taylor—3382

Molecular Spectra (see Absorption Spectra, Emission Spectra' Fluorescence, and Raman Spectra)

Molecular Structure and Constants (see also Absorption Spectra, Fluorescence, Raman Spectra, Electron Diffraction, and X-Ray Diffraction)

Adaptation of the Urey–Bradley force field to NH_3, PH_3, SbH_3, and AsH_3, Marian Pariseau, Ellen Wu, and John Overend—217

Answer to "Comments on Decius' compliance matrix," J. C. Decius—1130(L)

"Bond-orbital" and "modified electron-pair" calculations on the ammonia molecule, Atsushi Tsuchida and Kimio Ohno—600

Calculations of higher-order spectroscopic parameters using empirical potential functions, Joel M. Stutman, Ellis R. Lippincott, and Derek Steele—564

Classification of rotational energy levels. II, Jon T. Hougen—358

Comments on Decius' compliance matrix, S. J. Cyvin—1130(L)

Determination of the geometry of lithium oxide, $Li_2O(g)$, by electric deflection, Alfred Büchler, James L. Stauffer, William Klemperer, and Lennard Wharton—2299

Diamagnetic anisotropy effects of C≡C and C≡N bonds in nuclear magnetic resonance spectroscopy, G. S. Reddy and J. H. Goldstein—3509

Electric dipole moment of trisilylamine, Ravi Varma, Alan G. MacDiarmid, and John G. Miller—3157(L)

Erratum: Electric resonance spectrum and dipole moment of BaO, L. Wharton, M. Kaufman, and W. Klemperer [**37**, 622 (1962)]—240(L)

Erratum: Electronic structure of ammonia, A. B. F. Duncan [**27**, 423 (1957)]—240(L)

Erratum: Potential energy constants, rotational distortion constants, and thermodynamic properties of methylacetylenes, P. N. Daykin, S. Sundaram, and Forrest F. Cleveland [**37**, 1087 (1962)]—3156(L)

Geometry of the alkaline-earth dihalides, L. Wharton, R. A. Berg, and W. Klemperer—2023

Infrared spectra of the germyl halides, D. E. Freeman, K. H. Rhee, and M. K. Wilson—2908

Isotope bands and the vibration assignment of the $D\,^2\pi_g$–$A\,^2\pi_u$ system of N_2^+, T. Namioka, K. Yoshino, and Y. Tanaka—2629

Jahn–Teller effect and valence bond method, Joseph L. Bir man—3147

Microwave spectrum and structure of pentafluorosulfur bromide, Erwin W. Neuvar and Albert W. Jache—596

Microwave spectrum, molecular structure, and dipole moment of dimethylphosphine, Richard Nelson—2382(L)

Microwave spectrum, quadrupolar coupling constants, and dipole moment of chlorobenzene, Robert L. Poynter—1962

Microwave spectrum, structure, and dipole moment of "*cis*"-N_2F_2, Robert L. Kuczkowski and E. Bright Wilson, Jr.—1030

Microwave spectrum, structure, and dipole moment of silyl acetylene, John S. Muenter and Victor W. Laurie—1181

Mössbauer studies of iron organometallic complexes. I. Iron tetracarbonyl complexes, R. L. Collins and R. Pettit—3433

Normal vibrations, potential constants, and vibration–rotation interaction constants in cyclobutane and cyclobutane-d_8, R. C. Lord and I. Nakagawa—2951

On the recalculation of the potential curves for the ground states of I_2 and H_2, Stanley Weissman, Joseph T. Vanderslice, and Rubin Battino—2226

Open-shell SCF triplet-state energies of polyacenes, Lionel Goodman and James R. Hoyland—1068

Optimized single-configuration wavefunction for the ground state of lithium fluoride, A. D. McLean—2653

Polymer segmental motion as related to hindered rotation, W. W. Brandt—3327

Potential curve for the $^2\Sigma_u^+$ state of H_2^-, Howard S. Taylor and F. E. Harris—1012

Potential-energy curve of the lowest-lying triplet sigma state of lithium hydride, Howard S. Taylor—3382

Self-consistent-field wavefunctions for the N_3^- and NO_2^+ molecules, Enrico Clementi and A. D. McLean—323

Spectrum of N_3^- in solution, Itamar Burak and Avner Treinin—189

Structure and rotational isomerization of free hydrocarbon chains, L. S. Bartell and D. A. Kohl—3097

Structure of isobutylene, LeRoy H. Scharpen and Victor W. Laurie—1732

Testing of diatomic potential-energy functions by numerical methods, J. K. Cashion—1872

Urey–Bradley "nonbonded" forces, J. Paul Devlin—2385(L)

Use of Gaussian functions in the calculation of wavefunctions for small molecules. I. Preliminary investigations, C. M. Reeves—1

Use of Gaussian functions in the calculation of wavefunctions for small molecules. II. The ammonia molecule, C. M. Reeves and M. C. Harrison—11

Vector methods in the theory of molecular vibrations, B. N. Cyvin, S. J. Cyvin, and L. A. Kristiansen—1967

Vibration–rotation spectrum of the perpendicular bending modes of CH_2N_2, C. Bradley Moore—1884

Vibrational analysis of the Heitler-London potential of H_2, Charles L. Beckel—90

Vibrational energy levels of ionic molecules bound by classical forces, Edward J. Finn—2423

Neutron Diffraction

Antiferromagnetic and crystal structure of lithium cupric chloride dihydrate, S. C. Abrahams and H. J. Williams—2923

Electronic bases of molecular vibrations. I. General theory for diatomic molecules, Paul Phillipson—3010

Low-frequency molecular motions in polyethylene, G. J. Safford, H. R. Danner, and H. Boutin—1134(L)
Low-frequency motions of H_2O molecules in natrolite, Henri Boutin, G. J. Safford, and H. R. Danner—488(L)
Nature of the hydrogen bond in sodium acid fluoride, Barbara L. McGaw and James A. Ibers—2677
Study of low-frequency molecular motions in HF, KHF_2, KH_3F_4, and NaH_3F_4, Henri Boutin, G. J. Safford, and Velko Brajovic—3135

Nuclear Quadrupole Resonance

Deuteron magnetic resonance study of barium chlorate monohydrate, Takehiko Chiba—947
Electron structure of LiH and quadrupole moment of Li^7, S. L. Kahalas and R. K. Nesbet—529
Erratum: Nuclear moments and intermediate coupling, B. G. Wybourne [**37**, 1807 (1962)]—240(L)
Ga^{71} quadrupole interaction in α-Ga_2O_3 powder, Wm. J. Veigele—2389(L)
NMR studies of hydrated sodium tetraborate minerals. II. Na^{23} sites in borax and tincalconite, J. D. Cuthbert and H. E. Petch—1247
Nuclear pure quadrupole relaxation and its temperature dependence in solids, D. E. Woessner and H. S. Gutowsky—440
Pure nuclear quadrupole resonances of several chlorinated cyclopropanes, J. E. Todd, M. A. Whitehead, and K. E. Weber—404
Pure quadrupole resonance spectra of trialkylboranes, Peter Love—3044
Quadrupole antishielding in the rare earths, Johan Blok and D. A. Shirley—1128(L)
Quadrupole coupling constants from the microwave spectrum of hydrazoic acid, Richard A. Forman and David R. Lide, Jr.—1133(L)
Temperature dependence of the Cl^{35} pure quadrupole resonance in $NaClO_3$, W. D. Partlow and W. G. Moulton—2381(L)
Temperature dependence of the pure quadrupole resonance frequency and spin-lattice relaxation time in $NaBrO_3$ at low temperatures, R. F. Tipsword and W. G. Moulton—2730

Nuclear Resonance (see Magnetic Resonance)

Nucleation

Some relations between the supercooling and the structure of aqueous solutions, Hans R. Pruppacher—1586

Optical Activity

Phase Transitions

Calculation of heats of vaporization and fusion of nonionic liquids from the rigid-sphere equation of state, S. J. Yosim and B. B. Owens—2222
Catalytic effects in the transformation graphite to diamond, H. M. Strong—2057
Elastic constants of ammonium chloride near the lambda point, Carl W. Garland and Joseph S. Jones—2874
Entropy of fusion of molecular complexes, R. P. Rastogi, R. K. Nigam, R. N. Sharma, and H. L. Girdhar—3042
Evaporation mechanism and vapor composition, D. W. Jepsen and G. A. Somorjai—1665
Isotope effects on internal frequencies in the condensed phase resulting from interactions with the hindered translations and rotations. The vapor pressures of the isotopic ethylenes, Marvin J. Stern, W. Alexander Van Hook, and Max Wolfsberg—3179
Melting and polymorphism in $SbCl_3$ and $SbBr_3$, Billy F. Bowles, Gene J. Scott, and Stanley E. Babb, Jr.—831
Melting of gallium and bismuth, J. D. Mackenzie and R. L. Cormia—250(L)
Melting properties of silver nitrate to 10 000 atm, B. B. Owens—1053
NMR studies of phase transitions. I. NaSH, C. K. Coogan, Geneva G. Belford, and H. S. Gutowsky—3061
On the thermodynamics of the critical region for the Ising problem, G. S. Rushbrooke—842(L)
Thermodynamic properties of silicon tetrafluoride from 15°K to its triple point. The entropy from molecular and spectroscopic data, E. L. Pace and J. S. Mosser—154

Phosphors

External heavy-atom spin–orbital coupling effect. IV. Intersystem crossing, S. P. McGlynn, J. Daigre, and F. J. Smith—675

Photochemistry

Benzene photosensitized *cis-trans* isomerization of butene-2, Shin Sato, Kiyoaki Kikuchi, and Masahiro Tanaka—239(L)
Diffraction studies of photochemical decomposition of azides. I. X-ray and uv-induced lattice constant changes in TlN_3, Brigitte H. Krause—1706
Electrophilic character of the Hg $6(^3P_1)$ atom and the mechanism of electronic energy transfer in mercury photosensitization, Yves Rousseau, O. P. Strausz, and H. E. Gunning—962
Energy-transfer studies by spectrophotofluorometric method, Francis Wilkinson and Jean T. Dubois—377
Fluorescence of europium thenoyltrifluoroacetonate. II. Determination of absolute quantum efficiency, R. A. Gudmundsen, O. J. Marsh, and E. Matovich—272
General acid catalysis of the fading of photoisomerized 2,4-dinitrotoluene, Gunnar Wettermark and Robert Ricci—1218
Photochemical formation of phenanthrene from *cis*-stilbene in the vapor phase, R. Srinivasan and John C. Powers, Jr.—580
Photochemical studies in flash photolysis. III. Photolysis of acetone in different wavelength regions, A. Shilman and R. A. Marcus—996
Photoinduced change of organic free radicals as studied by ESR. I. Conversion of allyl-type to alkyl-type radicals in irradiated polyethylene, Shun-ichi Ohnishi, Shun-ichi Sugimoto, and Isamu Nitta—2647
Photoinduced free-radical ion formation from some charge transfer complexes, Raymond L. Ward—852(L)
Photolysis of aqueous azide solution containing mercuric salts, Kenichi Shinohara, Tadamasa Shida, and Nobufusa Saito—1477
Photolysis of aqueous nitrite solution containing mercuric salts, Kenichi Shinohara, Tadamasa Shida, and Nobufusa Saito—1474
Photolysis of methane by vacuum-ultraviolet light, Ellington M. Magee—855

Photosensitized *cis-trans* isomerization of butene-2, R. B. Cundall, F. J. Fletcher, and D. G. Milne—3536(L)
Physical and chemical effects at the anthracene-electrolyte interface due to photoelectrolysis, R. C. Jarnagin, J. Gilliland, Jr., J. S. Kim, and M. Silver—573
Primary mechanisms in eosin-photosensitized reactions of aromatic amino acids and ovalbumin, L. I. Grossweiner and E. F. Zwicker—2774(L)
Primary process in the photolysis of nitrogen dioxide at 4047 Å and a spectroscopic-photochemical determination of the dissociation energy, James N. Pitts, Jr., James H. Sharp, and Sunney I. Chan—238(L)
Primary reactions in the mercury photosensitized decomposition of 1-butyne, propyne, and acetylene at low pressures, P. Kebarle—2218
Radiative lifetime of triplet biacetyl, Jean T. Dubois and Francis Wilkinson—899
Vaporization of tungsten studied by flash heating and kinetic spectroscopy. I. Near-ultraviolet region, L. S. Nelson and N. A. Kuebler—1055
Vacuum ultraviolet photochemistry. VII. Photolysis of *n*-butane, H. Okabe and D. A. Becker—2549

Photoconductivity

Comment on the photon beam intensity dependence of induced conductivity in solid insulators and semiconductors, G. R. Freeman—3537(L)
Dark conductivity of cationic dye photoconductors, R. C. Nelson—859
Electron spin resonance study of some organic photoconductors, B.-Y. Cho, R. C. Nelson, and L. C. Brown—499
Generation of charge carriers in organic molecular crystals through multiple exciton interactions, David R. Kearns—2697
Photoconduction in charge-transfer complexes, H. Akamatu and H. Kuroda—3364
Photoelectric phenomena in hemoglobin and dyed gelatin, R. C. Nelson—112
Relative contributions of singlet–singlet and singlet–triplet interactions to the photogeneration of carriers of anthracene, M. Silver, S. Z. Weisz, J. S. Kim, and R. C. Jarnagin—3163(L)
Ruby-laser excited photocurrents in anthracene single crystals, K. Hasegawa and W. G. Schneider—1346(L)

Photo-ionization

One-electron photo-ionization of acridine dyes in rigid media: evidence for the formation of transient radical ion, E. C. Lim and G. W. Swenson—2768(L)
Photo-ionization efficiency curves. Measurement of ionization potentials and interpretation of fine structure, A. J. C. Nicholson—954

Polymers

Anisotropic scattering of light by isolated freely flexible linear macromolecules in amorphous matrix under strain, Hari L. Bhatnagar—1612(L)
Continuum distribution for anionic polymers, V. S. Nanda and R. K. Jain—1363(L)
Copolymerization as a Markov chain, H. Karl Frensdorff and Rudolph Pariser—2303
Electron-spin density in irradiated oriented polyethylene, Jiro Higuchi—2366
Electrostatic interaction between the two dipoles of substituents in the syndiotactic and the isotactic vinyl polymers, T. Fujiyama and T. Shimanouchi—1138(L)
Entanglement effects in concentrated polymer solutions from viscosity measurements, F. Bueche, C. J. Coven, and B. J. Kinzig—128
Equilibrium polymerization under pressure: the case of sulfur, Adi Eisenberg—1852
Erratum: Gel formation in polymers resulting from simultaneous crosslinking scission, Mitio Inokuti [**38**, 2999 (1963)]—2376(L)
Erratum: Monte Carlo study of coiling molecules. II, F. T. Wall, S. Windwer, and P. J. Gans [**38**, 2228 (1963)]—1900(L)
Excitation of π electrons in polystyrene and similar polymers by 20-keV electrons, N. Swanson and C. J. Powell—630
Influence of hydrodynamic interaction on the viscoelastic behavior of dilute polymer solutions, N. W. Tschoegl—149
Kinetic retardation in the quarternization of poly(4-vinylpyridine), C. B. Arends—1903(L)
Low-frequency molecular motions in polyethylene, G. J. Safford, H. R. Danner, and H. Boutin—1134(L)
Mean dimensions of macromolecular coil in laminar flow, A. Peterlin—224
Molecular weight distribution of linear polymers from stress relaxation in polymer melts, Warner L. Peticolas—3392
Photoinduced change of organic free radicals as studied by ESR. I. Conversion of allyl-type to alkyl-type radicals in irradiated polyethylene, Shun-ichi Ohnishi, Shun-ichi Sugimoto, and Isamu Nitta—2647
Polymer NMR spectroscopy. X. The use of H^1–H^1 spin decoupling in the elucidation of polymer structure, F. A. Bovey, E. W. Anderson, D. C. Douglass, and J. A. Manson—1199
Polymer segmental motion as related to hindered rotation, W. W. Brandt—3327
Polymerization kinetics of biological macromolecules on templates, Robert Simha, J. M. Zimmerman, and J. Moacanin—1239
Potential and effective diffusion constant in a polyelectrolyte solution, Sam R. Coriell and Julius L. Jackson—2418
Reaction kinetics of a long chain molecule, Leon Lazare—727
Second virial coefficient of polyelectrolytes. III, Norio Ise and Paul Ander—592
Solvent effects and a test of the theory of hypochromism, Martin T. Vala, Jr., and Stuart A. Rice—2348
Statistical mechanics of cross-linked polymers: formation of the infinite network, Horst Brodowsky and Stephen Prager—1103
Statistics of irreversible termination in homogeneous anionic polymerization, Bernard D. Coleman, Fred Gornick, and George Weiss—3233
Theory of the effects of concentration and chain length on helix-coil equilibria in two-stranded nucleic acids, Jon Applequist and Vinayak Damle—2719
Viscosity of polymer solutions, James M. Peterson and M. Fixman—2516

Proteins

Quadrupole Resonance (see Nuclear Quadrupole Resonance)

Quantum Mechanics (see Mechanics, Quantum)

Radiation Chemistry

Annihilation rates and collision complex of positrons in freon-12, J. H. Green and S. J. Tao—3160(L)

Chemical effects of isomeric transitions: separation of the isomers of Te^{127}, Te^{129}, and Te^{121}, Richard L. Hahn—3482

Chemistry of positive ions. III. The radiation chemistry of solid *n*-hexane at 77°K, Larry Kevan and W. F. Libby—1288

Diffraction studies of photochemical decomposition of azides. I. X-ray and uv-induced lattice constant changes in TlN_3, Brigitte H. Krause—1706

Effect of additives on the ionic reaction mechanism in the radiolysis of methane, P. Ausloos, S. G. Lias, and R. Gorden, Jr.—3341

Effect of electric field strength on the gamma-radiation-induced conductance of liquid alkanes, G. R. Freeman—1580

Effects of isotopic labeling and molecular structure on probability of ionization by electron impact, Seymour Meyerson, H. M. Grubb, and R. W. Vander Haar—1445

Electron-spin density in irradiated oriented polyethylene, Jiro Higuchi—2366

Electron spin resonance of a radical in irradiated single crystals of itaconic acid, Minoru Fujimoto—846(L)

Electron-spin resonance studies of irradiated glasses containing boron, Sook Lee and P. J. Bray—2863

Electron spin resonance studies of transient alkyl radicals, Richard W. Fessenden and Robert H. Schuler—2147

Gas-phase radiolysis of *n*-butane, R. P. Borkowski and P. J. Ausloos—818

Interpretation of hot-atom data, Chi-hua Hsiung and Adon A. Gordus—2770(L)

Interpretation of ion yields in binary mixtures, Cornelius E. Klots—1571

Kinetic theory of hot atom reactions. II. Evaluation of collisional energy loss. Application to reactive mixtures, Richard Wolfgang—2983

Kinetics of the reaction between solvated electrons and water in ethylenediamine, R. R. Dewald, J. L. Dye, M. Eigen, and L. deMaeyer—2388(L)

Mass-spectrometric study of ions from the α-particle irradiation of gases at near atmospheric pressures, P. Kebarle and E. W. Godbole—1131(L)

Model for OH-radical stabilization in ice at 77°K under γ irradiation, Seymour Siegel—390

Paramagnetic defects in irradiated CaO, Alexander J. Shuskus—849(L)

Paramagnetic resonance of nitrogen atoms in x-ray-irradiated sodium azide, Frederick F. Carlson—1206

Photoinduced change of organic free radicals as studied by ESR. I. Conversion of allyl-type to alkyl-type radicals in irradiated polyethylene, Shun-ichi Ohnishi, Shun-ichi Sugimoto, and Isamu Nitta—2647

Recoil tritium reactions: variations in hot abstraction yield with C–H bond type, William Breckenridge, John W. Root, and F. W. Rowland—2374(L)

Yield of "free ions" in gamma-irradiated liquid saturated hydrocarbons, G. R. Freeman—988

Radiochemistry

Erratum: Mean lives of positrons in aqueous solutions, J. E. Jackson and J. D. McGervey [**38**, 300 (1963)]—487(L)

Fragmentation of the excited parent ions, $[CH_3Kr^{82}]^+$ and $[CH_3O^{18}]^+$, following the β^- decay of CH_3Br^{82} and the β^+ decay of CH_3F^{18}, Thomas A. Carlson and R. Milford Shite—1748

Positronium decay in cholesteryl acetate, George D. Cole and William W. Walker—850(L)

Radiation decomposition of aqueous nitrite solution containing mercuric salts, Kenichi Shinohara, Tadamasa Shida, and Nobufusa Saito—1470

Radiotracer measurement of the desorption energy of silver from molybdenum and nickel, E. von Goeler and R. N. Peacock—169

Raman Spectra

Ionic interactions in aqueous solution: a Raman spectral study, P. M. Vollmar—2236

Normal vibrations, potential constants, and vibration–rotation interaction constants in cyclobutane and cyclobutane-d_8, R. C. Lord and I. Nakagawa—2951

Raman spectral studies of aqueous solutions of selenic acid, G. E. Walrafen—1479

Raman spectrum and vibrational assignment for molten thallous nitrate, G. J. Janz, T. R. Kozlowski, and S. C. Wait—1809

Raman study of zinc chloride solutions, D. E. Irish, Bruce McCarroll, and T. F. Young—3436

Secondary Raman effect, F. X. Powell—1606(L)

Some new Raman shifts for naphthalene at low frequencies, N. Mitchell and D. C. Nelson—1364(L)

Reaction Rates (see Kinetics of Reaction)

Refractive Indexes

Rotation

Calculation of the barrier to internal rotation in ethane, Russell M. Pitzer and William N. Lipscomb—1995

Determination of barrier heights from low-temperature heat-capacity data, Claus A. Wulff—1227

Far-infrared spectrum and barrier to internal rotation of ethyl fluoride, Gloria Sage and William Klemperer—371

Microwave spectrum of normal propyl chloride, T. N. Sarachman—469

Molecular rotation and *ortho-para* nuclear spin conversion of water suspended in solid Ar, Kr, and Xe, Richard L. Redington and Dolphus E. Milligan—1276

Molecular rotation in the solid state. Theory of rotation of trapped molecules in rare-gas lattices, W. H. Flygare—2263

Motion of the H_2O molecule in barium chlorate monohydrate, J. W. McGrath and A. A. Silvidi—3017

Polymer segmental motion as related to hindered rotation, W. W. Brandt—3327

Rotational correlation times for quadrupolar relaxation in liquids, D. E. O'Reilly and G. E. Schacher—1768

Spectra of matrix-isolated water in the "pure rotation" region, Dean W. Robinson—3430

Structure and rotational isomerization of free hydrocarbon chains, L. S. Bartell and D. A. Kohl—3097

Tables for the analysis of rotational spectra containing centrifugal distortion and torsional splitting, Helmut Dreizler and Rainer Peter—1132(L)

Scattering

Cross sections of ion-permanent-dipole reactions by mass spectrometry, Thomas F. Moran and William H. Hamill—1413

Cyclotron resonance in slightly ionized gases, Fred C. Fehsenfeld—1653

Determination of electronic energy levels of molecules by low-energy electron-impact spectroscopy, J. Arol Simpson and S. R. Mielczarek—1606(L)

Differences between low-energy electron-impact spectra at 0° and at large scattering angle, Aron Kuppermann and Lionel M. Raff—1607(L)

Direct determination of intermolecular potential parameters from scattering phase shifts, W. A. Sanders and C. R. Mueller—2572

Direct determination of scattering phase shifts from differential cross sections, J. W. Brackett, C. R. Mueller, and W. A. Sanders—2564

Dissociation of H_2 and other diatomic molecules by neutron bombardment, W. W. Clendenin—2283

Energy dependence of cross sections for ion-molecule reactions. Transfer of hydrogen atoms and hydrogen ions, Clayton F. Giese and William B. Maier, II—739

Excitation of π electrons in polystyrene and similar polymers by 20-keV electrons, N. Swanson and C. J. Powell—630

Interaction energies and transport coefficients of Li+H and O+H gas mixtures at high temperatures, Paul H. Krupenie, Edward A. Mason, and Joseph T. Vanderslice—2399

Nonadiabatic effects in the high-energy scattering of normal helium atoms, Walter R. Thorson—1431

Note concerning the elastic scattering of low-energy electrons in Thomas-Fermi theory, T. Tietz and C. Malinowska—2778(L)

Substantiation of a method for obtaining interatomic potential energy parameters, Erhard W. Rothe, R. H. Neynaber, Burton W. Scott, S. M. Trujillo, and P. K. Rol—493(L)

Secondary Electron Emission

Sedimentation

Semiconductors

g-factor and Knight shift in p-type lead telluride, I. Weinberg—492(L)

Generation of charge carriers in organic molecular crystals through multiple exciton interactions, David R. Kearns—2697

On the excess electron and hole band structures and carrier mobility in naphthalene, anthracene, and several polyphenyls, Joseph L. Katz, Stuart A. Rice, Sang-il Choi, and Joshua Jortner—1683

Trap density and depth in p-chloranil crystals, P. J. Reucroft, O. N. Rudyj, and M. M. Labes—1136(L)

Shock Waves (see also Detonation)

Absorption spectra of polyatomic molecules at high temperatures. II. Benzene and perfluorobenzene. Kinetics of the pyrolysis of benzene, S. N. Bauer and C. F. Aten—1253

Dissociation of Cl_2 in shock waves, T. A. Jacobs and R. R. Giedt—749

Emission and dissociation of NO_2 in shock waves, Hiroyuki Hiraoka and R. Hardwick—2361

Investigation of early ionization processes in shocked xenon, D. S. Hacker and H. Bloomberg—3263

Mass spectral studies of kinetics behind shock waves. I. Thermal dissociation of chlorine, R. W. Diesen and W. J. Felmlee—2115

Mass spectral studies of kinetics behind shock waves. II. Thermal decomposition of hydrazine, R. W. Diesen—2121

Oxygen vibrational relaxation in O_2–H_2 mixtures, Donald R. White and Roger C. Millikan—2107(L)

Oxygen vibrational relaxation in O_2–He and O_2–Ar mixtures, Donald R. White and Roger C. Millikan—1807

Rotational temperatures of OH radicals in shock waves, Hajime Miyama and Tetsu Takeyama—851(L)

Separation of gas mixtures in supersonic jets, Victor H. Reis and John B. Fenn—3240

Shock-wave integrated intensity measurements of the 2.7-micron CO_2 band between 1200° and 3000°K, J. C. Breeze and C. C. Ferriso—2619

Studies with a single-pulse shock tube. II. The thermal decomposition of perfluorocyclobutane, Assa Lifshitz, H. F. Carroll, and S. H. Bauer—1661

Systematics of vibrational relaxation, Roger C. Millikan and Donald R. White—3209

Vibrational relaxation of oxygen, Donald R. White and Roger C. Millikan—1803

Solutions (see also Liquids)

Absorption spectrum of Cs in the presence of isomeric hydrocarbons, Oleg Jefimenko and Reginald J. Exton—229

Conformal ionic mixtures, Milton Blander and S. J. Yosim—2610

Coordination numbers of beryllium and aluminum ions in aqueous solutions, Robert E. Connick and Daniel N. Fiat—1349(L)

Electronic spectral shifts of some aromatic compounds in nonpolar solvents, Suzanne Stokes—2309

Hysteresis in the palladium–hydrogen system, N. A. Scholtus and W. Keith Hall—868

Infrared absorption intensities in mixed crystals of benzene and deuterobenzene, J. Leland Hollenberg and David A. Dows—495

Interactions in polar media. II. Continua, R. A. Marcus—460

Ionic interactions in aqueous solution: a Raman spectral study, P. M. Vollmar—2236

Kinetics of the reaction between solvated electrons and water in ethylenediamine, R. R. Dewald, J. L. Dye, M. Eigen, and L. deMaeyer—2388(L)

Magnetic characteristics of Tb–Y and Ho–Y solid solutions, Sidney Weinstein, R. S. Craig, and W. E. Wallace—1449

Measurement of infrared band contours in solution, Stanley Abramowitz and Robert P. Bauman—2757

On the vapor–liquid equilibrium for the helium–hydrogen system, C. A. Eckert and J. M. Prausnitz—246(L)

Quantum effects in liquid hydrogen, Jacob Bigeleisen—769

Raman spectral studies of aqueous solutions of selenic acid, G. E. Walrafen—1479

Raman study of zinc chloride solutions, D. E. Irish, Bruce McCarroll, and T. F. Young—3436

Short-range interactions of aqueous ions, L. B. Magnusson—1953
Spectroscopic study of the effect of high pressures on organic charge-transfer complexes in solution, J. Robert Gott and William G. Maisch—2229
Structure of molten oxides. II. A density study of binary germanates containing Li_2O, Na_2O, K_2O, and Rb_2O, E. F. Riebling—3022
Structure of the ion pairs of anilinium salts in solution determined by NMR, Gideon Fraenkel—1614(L)
Theory of the single-ion heat of transport in nonisothermal electrolytic solutions, Richard J. Bearman and V. S. Vaidhyanathan—3411
Vapor–liquid equilibria of dilute solutions of HT in e-H_2 and DT in e-D_2 from the triple points to the critical temperatures of the solutions, Jacob Bigeleisen and Eugene C. Kerr—763
Vibrational spectra of molten mercuric halides. III. Mercuric chloride–thallous nitrate mixtures, George J. Janz and Theodore R. Kozlowski—843(L)

Spectra (see Absorption Spectra, Emission Spectra, Fluorescence, and Raman Spectra)

Sputtering

Statistical Mechanics (see Mechanics, Statistical)

Surface Phenomena

Absolute infrared intensity measurements in thin films. II. Solids deposited on halide plates, S. Maeda, G. Thyagarajan, and P. N. Schatz—3474
Calculation of surface distortion in an alkali halide crystal bounded by a free {100} face, G. C. Benson, P. I. Freeman, and E. Dempsey—302
Crystallography of impurity adsorption on copper surfaces, W. M. Robertson and P. G. Shewmon—2330
Diffusion and heterogeneous reaction. V. Transition from a surface- to a diffusion-controlled process during atom recombination, Henry Wise, Clarence M. Ablow, and Dan J. Schott—2063
Distribution of space charge in homogeneous metal oxide films, W. B. Jepson—2377(L)
Effect of radio-frequency fields on the electrophoretic mobility of some colloids, David J. Wilkins and John H. Heller—3401
Electrical conductivity of potassium films on potassium chloride, Ling Y. Wei—2709
Field desorption of carbon monoxide from tungsten, Lynwood W. Swanson and Robert Gomer—2813
Fluoride interference films on uranium dioxide. I. The kinetically derived optical equation, W. P. Ellis—1172
Fluoride interference films on uranium dioxide. II. Kinetics of the hydrofluorination reaction, W. P. Ellis and B. W. Roberts—1176
Ionization on tungsten single-crystal surfaces, F. L. Reynolds—1107
Kinetics of desorption. III. Rb^+, K^+, and Na^+ on rhenium, Milton D. Scheer and Joseph Fine—1752
Magnetic susceptibility of partially oxidized copper films at 25°C, A. W. Czanderna and H. Wieder—489(L)
Mobility of silver crystallites on surfaces of MoS_2 and graphite, Gerald W. Sears and John B. Hudson—2380(L)
On the kinetics of chemisorption, R. Coekelbergs, A. Frennet, G. Lienard, and P. Resibois—585
Preparation and properties of monomolecular films of chlorophyll a and pheophytin a, W. D. Bellamy, G. L. Gaines, Jr., and A. G. Tweet—2528
Radiotracer measurement of the desorption energy of silver from molybdenum and nickel, E. von Goeler and R. N. Peacock—169
Relation between the constants in the Arrhenius equation for alkali ions desorbed in vacuum from contaminated metal surfaces, J. W. Trischka—1357(L)
Space charge in growing oxide films. III. Multispecies diffusion, A. T. Fromhold, Jr.—2278
Surface energy of small ionic crystals, A. G. Walton—3162(L)
Temperature dependences of nuclear-transfer and spin-relaxation phenomena of water adsorbed on silica gel, D. E. Woessner—2783
Trapping and energy transfer in atomic collisions with a crystal surface. II. Impurities, Bruce McCarroll—1317
Work function change on monolayer adsorption, J. Ross Macdonald and C. A. Barlow, Jr.—412

Thermal Conductivity

On the kinetic theory of dense fluids. XIV. Experimental and theoretical studies of thermal conductivity in liquid Ar, Ke, Xe, and CH_4, Lynn D. Ikenberry and Stuart A. Rice—1561
Theory of the thermal accommodation coefficients of a diatomic gas, P. Feuer—1311
Thermal conductivity of alkali-metal vapors, M. Gottlieb and R. J. Zollweg—2773(L)

Thermal Diffusion

Isotopic thermal-diffusion factor of argon, R. Paul, A. J. Howard, and W. W. Watson—3053
On the connection between two recent theories of thermal diffusion in crystals, L. A. Girifalco—2377(L)

Thermionic Emission

Thermodynamic Properties

Centrifugal distortion corrections to calculated thermodynamic functions, Robin S. McDowell—526
Correlation of magnetothermodynamic data with a theoretical model. Powdered $CoSO_4 \cdot 7H_2O$ over the range 0 to 100 kG above 1.2°K, R. A. Fisher and E. W. Hornung—939
Densities and molar volumes of electrolytes in mixed solvents, J. Padova—2599
Determination of barrier heights from low-temperature heat-capacity data, Claus A. Wulff—1227
Dissociation energies of some metal sulfides, J. R. Marquart and J. Berkowitz—283
Dissociation of Cl_2 in shock waves, T. A. Jacobs and R. R. Giedt—749
Emission spectrum and thermodynamic properties of gallium monoxide, Victor Raziunas, George J. Macur, and Sidney Katz—1161
Entropy of fusion of molecular complexes, R. P. Rastogi, R. K. Nigam, R. N. Sharma, and H. L. Girdhar—3042
Equilibrium composition of sulfur vapor, J. Berkowitz and J. R. Marquart—275
Erratum: Potential energy constants, rotational distortion constants, and thermodynamic properties of methylacetylenes, P. N. Daykin, S. Sundaram, and Forrest F. Cleveland [**37**, 1087 (1962)]—3156(L)

Evaporation mechanism and vapor composition, D. W. Jepsen and G. A. Somorjai—1665
Frequency distribution and the specific heat of NaCl, Elizabeth M. Arase, Robert D. Hatcher, and Jacob Neuberger—353
Gaseous metaborates. I. Mass-spectrometric study of the vaporization of lithium and sodium metaborates, Alfred Büchler and Joan B. Berkowitz-Mattuck—286
Heat capacity of $MnBr_2$ between 1.7° and 20°K. Magnetic ordering in $MnBr_2$, Wayne B. Hadley and J. W. Stout—2205
Heat of formation and entropy of $(BOCl)_3$, Jay Blauer and Milton Farber—158
High-temperature heat content of niobium carbide and of tantalum carbide, L. S. Levinson—1550
Infrared spectra, and the structures and thermodynamics of gaseous LiO, Li_2O, and Li_2O_2, David White, K. S. Seshadri, D. F. Dever, D. E. Mann, and M. J. Linevsky—2463
Isotope effects on internal frequencies in the condensed phase resulting from interactions with the hindered translations and rotations. The vapor pressures of the isotopic ethylenes, Marvin J. Stern, W. Alexander Van Hook, and Max Wolfsberg—3179
Linear antiferromagnetism in the organic free radical 1,3-bis-diphenylene-2-phenyl allyl, W. O. Hamilton and G. E. Pake—2694
Melting of gallium and bismuth, J. D. Mackenzie and R. L. Cormia—250(L)
Primary process in the photolysis of nitrogen dioxide at 4047 Å and a spectroscopic-photochemical determination of the dissociation energy, James N. Pitts, Jr., James H. Sharp, and Sunney I. Chan—238(L)
Relationship between spectral shifts and solubility for naphthalene in compressed nonpolar gases, A. D. King, Jr., and W. W. Robertson—3071
Spectroscopic evidence for complex formation between carbon tetrachloride and aromatic hydrocarbons, Ralph Anderson and J. M. Prausnitz—1225
Structure of molten oxides. II. A density study of binary germanates containing Li_2O, Na_2O, K_2O, and Rb_2O, E. F. Riebling—3022
Thermodynamic properties of a monatomic hydrogen gas at high temperatures, Irwin Oppenheim and Dennis R. Hafemann—101
Thermodynamic properties of CH_4 and CD_4. Interpretation of the properties of the solids, J. H. Colwell, E. K. Gill, and J. A. Morrison—635
Thermodynamic properties of silicon tetrafluoride from 15°K to its triplet point. The entropy from molecular and spectroscopic data, E. L. Pace and J. S. Mosser—154
Thermodynamics of vaporization of lithium oxide, boric oxide, and lithium metaborate, D. L. Hildenbrand, W. F. Hall, and N. D. Potter—296
Thermoelectric power in nonstoichiometric α-Nb_2O_5, R. F. Janninck and D. H. Whitmore—179
Transpiration and mass spectrometric studies of equilibria involving BOF(g) and $(BOF)_3$(g), Donald L. Hildenbrand, Lowell P. Theard, and Albert M. Saul—1973
Transpiration study of magnesium oxide, C. A. Alexander, J. S. Ogden, and A. Levy—3057
Vapor–liquid equilibria of dilute solutions of HT in e-H_2 and DT in e-D_2 from the triple points to the critical temperatures of the solutions, Jacob Bigeleisen and Eugene C. Kerr—763
Vapor-phase equilibrium of NO, NO_2, H_2O, and HNO_2, D. M. Waldorf and A. L. Babb—432

Thermodynamics

Free energy of a system with random elements, Robert M. Mazo—1224
Ion-solvent interaction. II. Partial molar volume and electrostriction: a thermodynamic approach, J. Padova—1552
On diagonalizing phenomenological matrices, Milton Manes—456
On the choice of phenomenological coefficients, R. P. Rastogi and R. L. Blokhra—241(L)
On the thermodynamics of the critical region for the Ising problem, G. S. Rushbrooke—842(L)
Some thermodynamic aspects of the glass transition: free volume, entropy, and enthalpy theories, Martin Goldstein—3369
Thermodynamic functions for nonuniform systems, Edward W. Hart—3075

Thermoluminescence

Thermoelectric effect in single-crystal cuprous oxide at high temperatures, Moshe H. Zirin and Dan Trivich—870

Transport Phenomena

Formal kinetic theory of transport phenomena in polyatomic gas mixtures, L. Monchick, K. S. Yun, and E. A. Mason—654
Interaction energies and transport coefficients of Li+H and O+H gas mixtures at high temperatures, Paul H. Krupenie, Edward A. Mason, and Joseph T. Vanderslice—2399
Isotopic thermal-diffusion factor of argon, R. Paul, A. J. Howard, and W. W. Watson—3053
Mean dimensions of macromolecular coil in laminar flow, A. Peterlin—224
On the kinetic theory of dense fluids. XIV. Experimental and theoretical studies of thermal conductivity in liquid Ar, Ke, Xe, and CH_4, Lynn D. Ikenberry and Stuart A. Rice—1561
Separation of gas mixtures in supersonic jets, Victor H. Reis and John B. Fenn—3240
Theory of the single-ion heat of transport in nonisothermal electrolytic solutions, Richard J. Bearman and V. S. Vaidhyanathan—3411
Thermoelectric power of CuCl containing $CdCl_2$, Y. W. Hsueh and R. W. Christy—3519
Transport in a two-component square-well fluid, Jamshid Naghizadeh—3406

Turbidity

Ultrasonics

Sound dispersion in substituted methane–inert gas mixtures, J. R. Olson and Sam Legvold—2902
Vibrational relaxation in high-density methane, Walter M. Madigosky—2704

Valence and Chemical Bond

An extended Hückel theory. I. Hydrocarbons, Roald Hoffmann—1397
Anisotropy of the fluorine chemical shift tensor in xenon tetrafluoride, R. Blinc, I. Zupančić, S. Maričić, and Z. Veksli—2109(L)

"Bond-orbital" and "modified electron-pair" calculations on the ammonia molecule, Atsushi Tsuchida and Kimio Ohno—600

Calculation of the barrier to internal rotation in ethane, Russell M. Pitzer and William N. Lipscomb—1995

Chemical shifts in xenon fluorides, D. Lazdins, C. W. Kern, and M. Karplus—1611(L)

Criterion for ordering the bond strengths of neutral and positively charged hydrides, R. E. Stanton—2368

Electric moments and molecular orbitals for methane, W. T. King—2141

Electrostatic contribution to the energy of the hydrogen bond in hydrogen fluoride dimer. I. Utilizing approximate evaluation of multicenter integrals, Bentz B. Howard—2524

Intramolecular electron transfer in bis(*p*-nitrophenyl) anions and its effect on electron spin resonance hyperfine structure, John E. Harriman and August H. Maki—778

Investigation of the bonding of iron-group ions in fluoride crystals. II, T. P. P. Hall, W. Hayes, R. W. H. Stevenson, and J. Wilkens—35

Isotropic NMR shifts in pyridine-type bases complexed with paramagnetic Ni^{II} and Co^{II} acetylacetonates, James A. Happe and Raymond L. Ward—1211

Isotropic proton hyperfine interaction and properties of the CH bond, Jiro Higuchi—3455

Molecular and crystal structure of $C_2H_5NH_2B_9H_{11}NHC_2H_5$, Ruth Lewin, Paul G. Simpson, and William N. Lipscomb—1532

Molecular, crystal, and valence structures of $B_{18}H_{22}$, Paul G. Simpson and William N. Lipscomb—26

Molecular, crystal, and valence structures of Iso-$B_{18}H_{22}$, Paul G. Simpson, Kirsten Folting, Robert D. Dobrott, and William N. Lipscomb—2339

Molecular orbital study of nonadditive substituent effects, John S. Martin—1728

Nuclear isomer shift and covalency in iron complexes, J. Danon—236(L)

One-center perturbation approach to molecular electronic energies. I. Exposition of the method, Peter Hauk, Robert G. Parr, and Hendrik F. Hameka—2085

Pi electronic structure of the benzene molecule, J. W. Moskowitz and M. P. Barnett—1557

Potential-energy curve of the lowest-lying triplet sigma state of lithium hydride, Howard S. Taylor—3382

Raman study of zinc chloride solutions, D. E. Irish, Bruce McCarroll, and T. F. Young—3436

Semiempirical calculation on the lower electronic states of the benzene molecule, Tosinobu Anno and Akira Sado—2293

SPO (split-*p*-orbital) method. IV. Calculations for the $(2p)^2$ state of helium, Michael J. S. Dewar and Alice L. H. Chung—1741

Studies on the alternant molecular orbital method. V. A many-parameter energy expression for states with different multiplicities; application to benzene, J. de Heer and R. Pauncz—2314

Valence-bond theory of resonance: aniline, phenol, and fluorobenzene, John C. Schug—2798

Viscosity

Entanglement effects in concentrated polymer solutions from viscosity measurements, F. Bueche, C. J. Coven, and B. J. Kinzig—128

Influence of hydrodynamic interaction on the viscoelastic behavior of dilute polymer solutions, N. W. Tschoegl—149

Molecular weight distribution of linear polymers from stress relaxation in polymer melts, Warner L. Peticolas—3392

Structure of molten oxides. I. Viscosity of GeO_2, and binary germanates containing Li_2O, Na_2O, K_2O, and Rb_2O, E. F. Riebling—1889

Viscosity and diffusion coefficients of gaseous sulfur hexafluoride–carbon tetrafluoride mixtures, C. J. G. Raw and Helen Tang—2616

Viscosity of polymer solutions, James M. Peterson and M. Fixman—2516

X-Ray Diffraction

Analytical expressions for potentials of neutral Thomas–Fermi–Dirac atoms and for the corresponding atomic scattering factors for x rays and electrons, R. A. Bonham and T. G. Strand—2200

Calculation of x-ray and electron intensities scattered by the NH_3 and H_2O molecules, Claude Tavard, Marcel Rouault, Monique Roux, and Marguerite Cornille—2390(L)

Cation distributions in nonstoichiometric magnesium ferrite, R. L. Mozzi and A. E. Paladino—435

Crystal structure of cerium magnesium nitrate hydrate, Allan Zalkin, J. D. Forrester, and David H. Templeton—2881

Diffraction studies of photochemical decomposition of azides. I. X-ray and uv-induced lattice constant changes in TlN_3, Brigitte H. Krause—1706

Effective depth of formation of x-ray line radiation, Sema'an I. Salem and John C. Watts—2259

Metastable simple cubic structure in the indium–antimony system, C. B. Jordan—1613(L)

Molecular and crystal structure of $C_2H_5NH_2B_9H_{11}NHC_2H_5$, Ruth Lewin, Paul G. Simpson, and William N. Lipscomb—1532

Molecular, crystal, and valence structures of $B_{18}H_{22}$, Paul G. Simpson and William N. Lipscomb—26

Molecular, crystal, and valence structures of Iso-$B_{18}H_{22}$, Paul G. Simpson, Kirsten Folting, Robert D. Dobrott, and William N. Lipscomb—2339

Nuclear magnetic shielding constants and x-ray atomic scattering factors for two-, three-, and four-electron systems by means of analytic Hartree–Fock wavefunctions, M. L. Rustgi and P. Tiwari—2590

Polyhedral clathrate hydrates. V. Structure of the tetra-*n*-butyl ammonium fluoride hydrate, R. K. McMullan, M. Bonamico, and G. A. Jeffrey—3295

Polyhedral clathrate hydrates. VI. Lattice type and ion distribution in some new peralkyl ammonium, phosphonium, and sulfonium salt hydrates, Gezina Beurskens, G. A. Jeffrey, and R. K. McMullan—3311

Structural and magnetic characteristics of $TiFe_2$–$ZrFe_2$ and $ZrCo_2$–$ZrFe_2$ alloys, E. Piegger and R. S. Craig—137

Structure of oriented sodium metaphosphate glass fibers, M. E. Milberg and M. C. Daly—2966

X-ray and electrical conductivity study of the fluorite phase in the system ZrO_2–CaO, T. Y. Tien and E. C. Subbarao—1041

X-ray study of critical opalescence in argon, J. E. Thomas and Paul W. Schmidt—2506